

**GOLDSTAR**

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**VCP 4200P**

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**MODEL**

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**SERVICE MANUAL**

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# 1. PREFACE

This service manual provides a variety service information. It contains the mechanical structure of the Video Cassette Player(VCP) together with mechanical adjustments and the electronic circuits in schematic form. This VCP was manu-

factured and assembled under our strict quality control standards and meets or exceeds industry specifications and standards.

## 1.1 FEATURES

- \*CONVENIENT FRONT LOADING SYSTEM
- \*PLAYBACK UP TO 8 HOURS WITH T-160 TAPE IN EP MODE
- \*AUTOMATIC REPEAT FUNCTION
- \*VISUAL SEARCH FUNCTION(CUE REVIEW) 15 TIMES THE NORMAL SPEED IN EP MODE
- \*FREEZE FUNCTION(STILL)
- \*AUTOMATIC REWIND AT THE END OF THE TAPE
- \*AUTO POWER FUNCTION

- \*AUTO PLAYBACK FUNCTION
- \*SOFT TOUCH CONTROLS WITH MICRO-PROCESSOR
- \*AUTOMATIC SELECTION OF CORRECT PLAYBACK SPEED
- \*REMOTE CONTROL FUNCTION

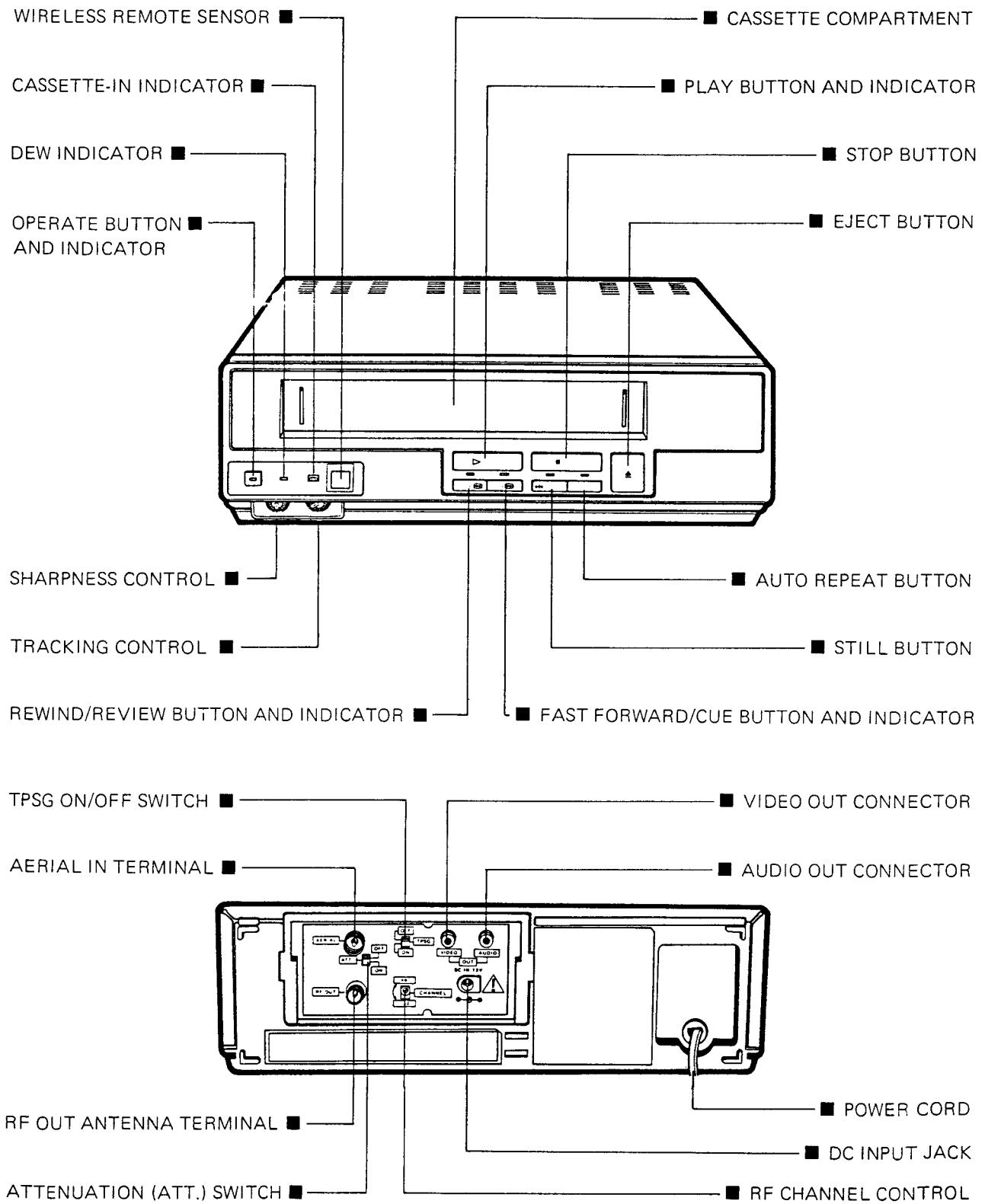
This product is a video player exclusively for playback, and recording is not possible.

## 1.2 SPECIFICATIONS

General	CCIR Standard(625 lines 50 fields)
Television System	PAL/MESECAM colour signal
Tape Format	Width 1/2"
Tape Speed	(12 7mm high density tape VHS)
Maximum Playback Time	23.39mm/sec(SP mode)
FF/Rewind Time	4 hours(with E-240 type tape)
RF Output	Less than 5 Minutes
RF Modulator	(with E-180 type tape)
Dimensions (W×H×Dmm)	PAL B/G
Weight	Ch 32~Ch 40 adjustable
Operating Temperature	74±4 dBu
Operating Humidity	75 ohm unbalanced
Power Source	290×89×298mm
Power Consumption	4.9Kg approx.
Video	5°C-35°C
Output level	35%-80%
Signal to Noise Ratio	220V±10% AC 50Hz±0.5%
Audio	(DC 12V+3-0)
Output level	23W
Signal to Noise Ratio	VIDEO OUT jack(RCA type)
Audio Frequency	1.0Vp-p 75ohm unbalanced
	more than 43dB(at SP mode)
	AUDIO OUT jack(RCA type)
	-4dBm more than 5K ohm
	more than 38dB(at SP mode)
	200Hz-8KHz(at SP mode)

\*Weight and Dimensions shown are approximate

### 1-3 LOCATION OF CUSTOMER CONTROLS



## 2. DISASSEMBLY

### 2-1 CABINET DISASSEMBLY

#### 2-1-1 Top Case(Fig. 2-1-1)

- A. Remove four screws (A). (See Fig. 2-1-1)
- B. Hold the back of Top Case and lift it up slightly backward to remove it.

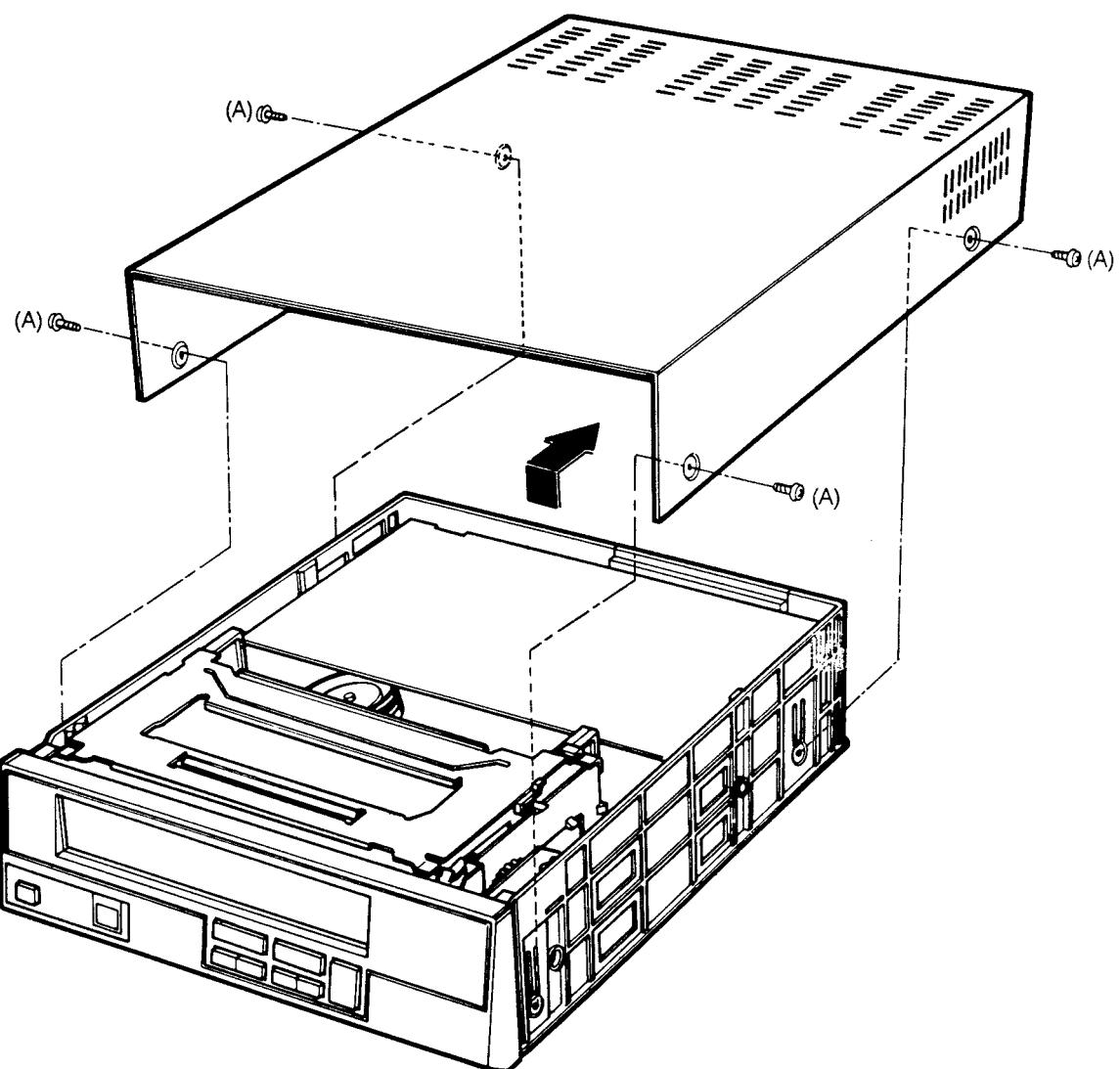


Fig. 2-1-1

## 2-1-2 Bottom Cover

A. Remove seven screws (B) to remove the Bottom Cover.  
(See Fig. 2-1-2)

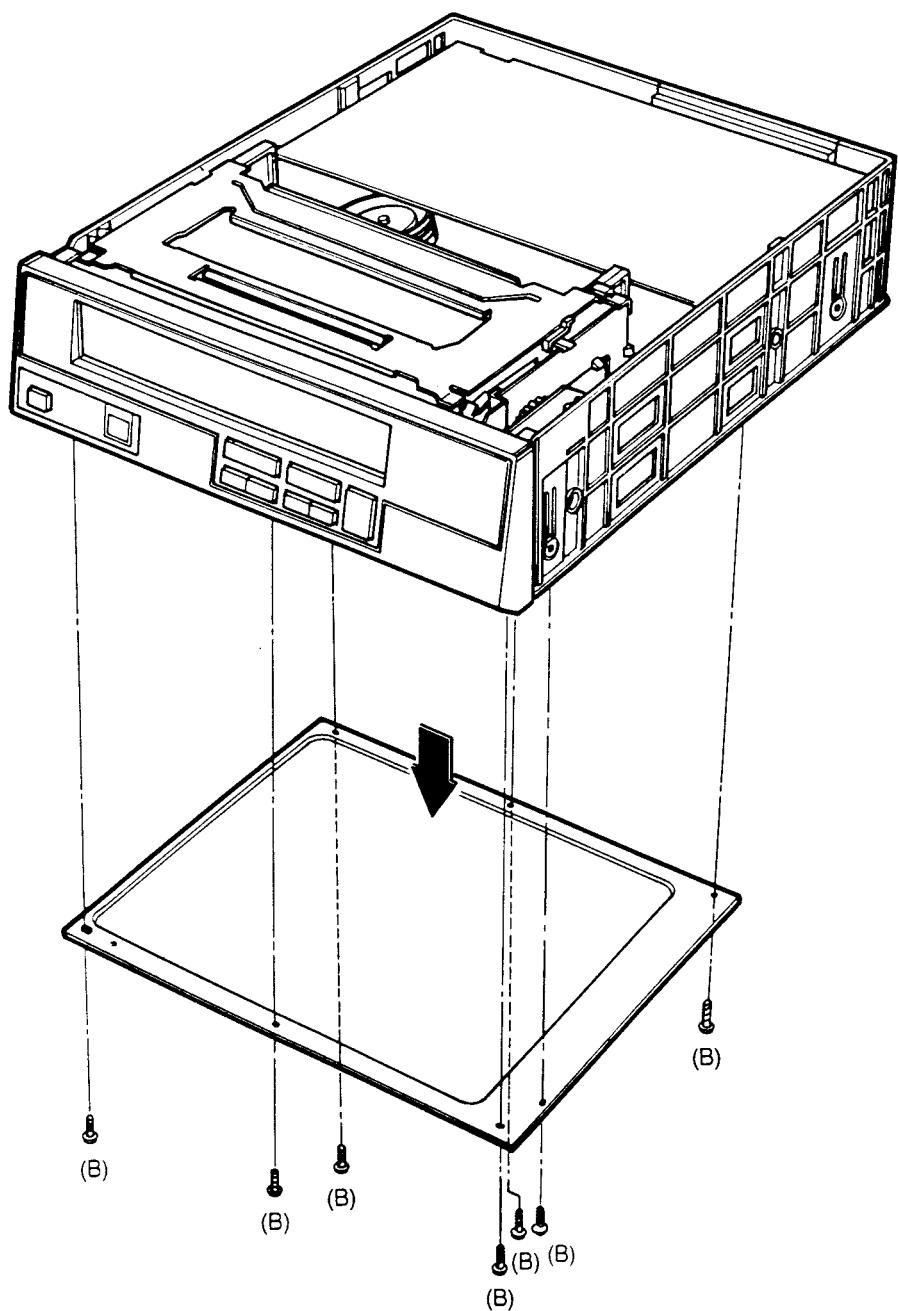


Fig. 2-1-2

### 2-1-3 Front Panel

- A. Remove the Top Cover. (See Fig. 2-1-1)
- B. Remove the Bottom Cover. (See Fig. 2-1-2)
- C. Remove two screws (C) on the top of the Front Panel.
- D. Remove the stoppers of the top of the Front Panel.
- E. Remove the stoppers of the bottom of the Front Panel.

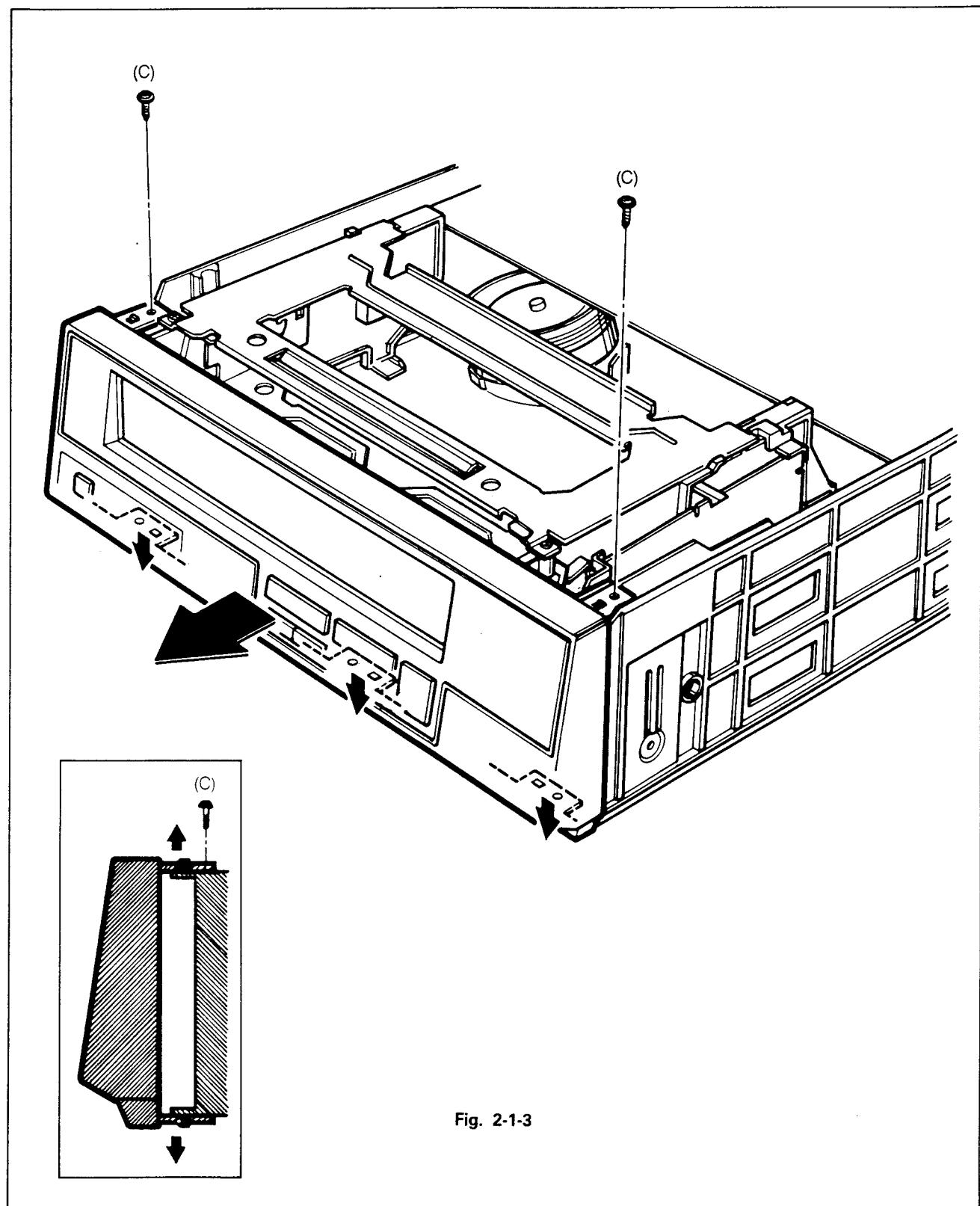


Fig. 2-1-3

## 2-2 CIRCUIT BOARD DISASSEMBLY

### 2-2-1 Main Circuit Board

A. Remove three screws (A) and then lift Main PWB up to remove it.

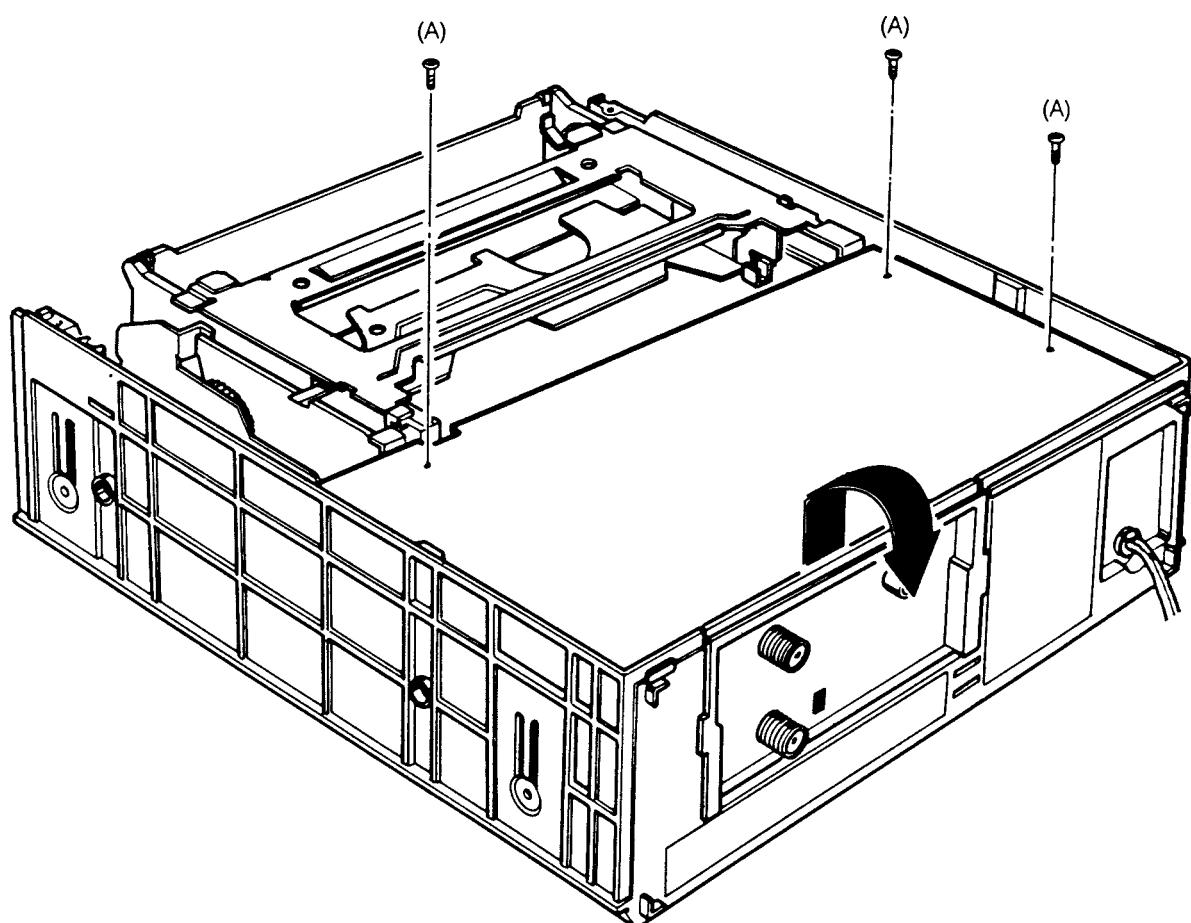


Fig. 2-2-1

## 2-2-2 Key Function Circuit Board

A. Remove three screws (B).

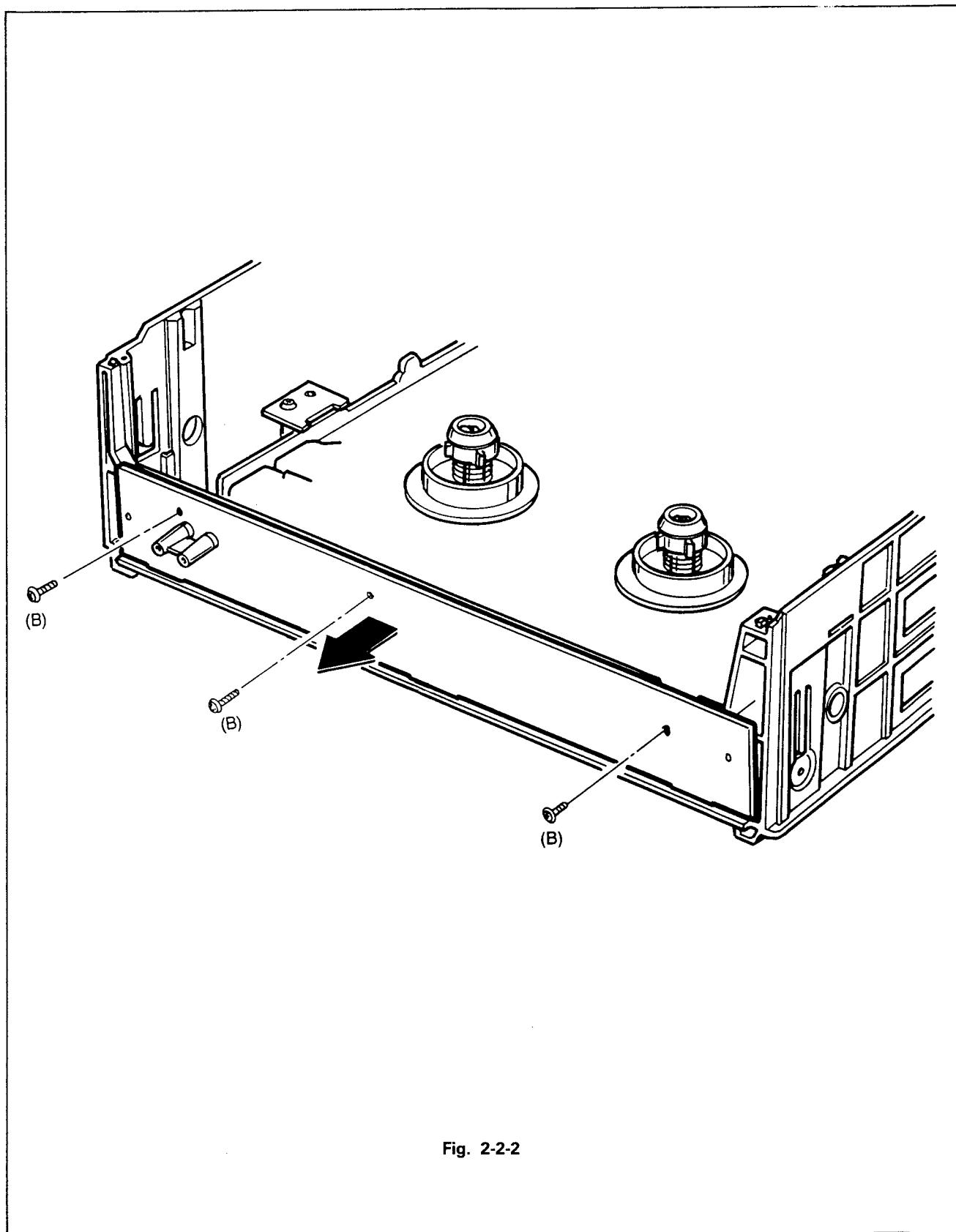


Fig. 2-2-2

### 2-2-3 Power Circuit Board

- A. Remove two screws (C).
- B. Lift the Power Circuit Board up in the direction shown by the arrow.

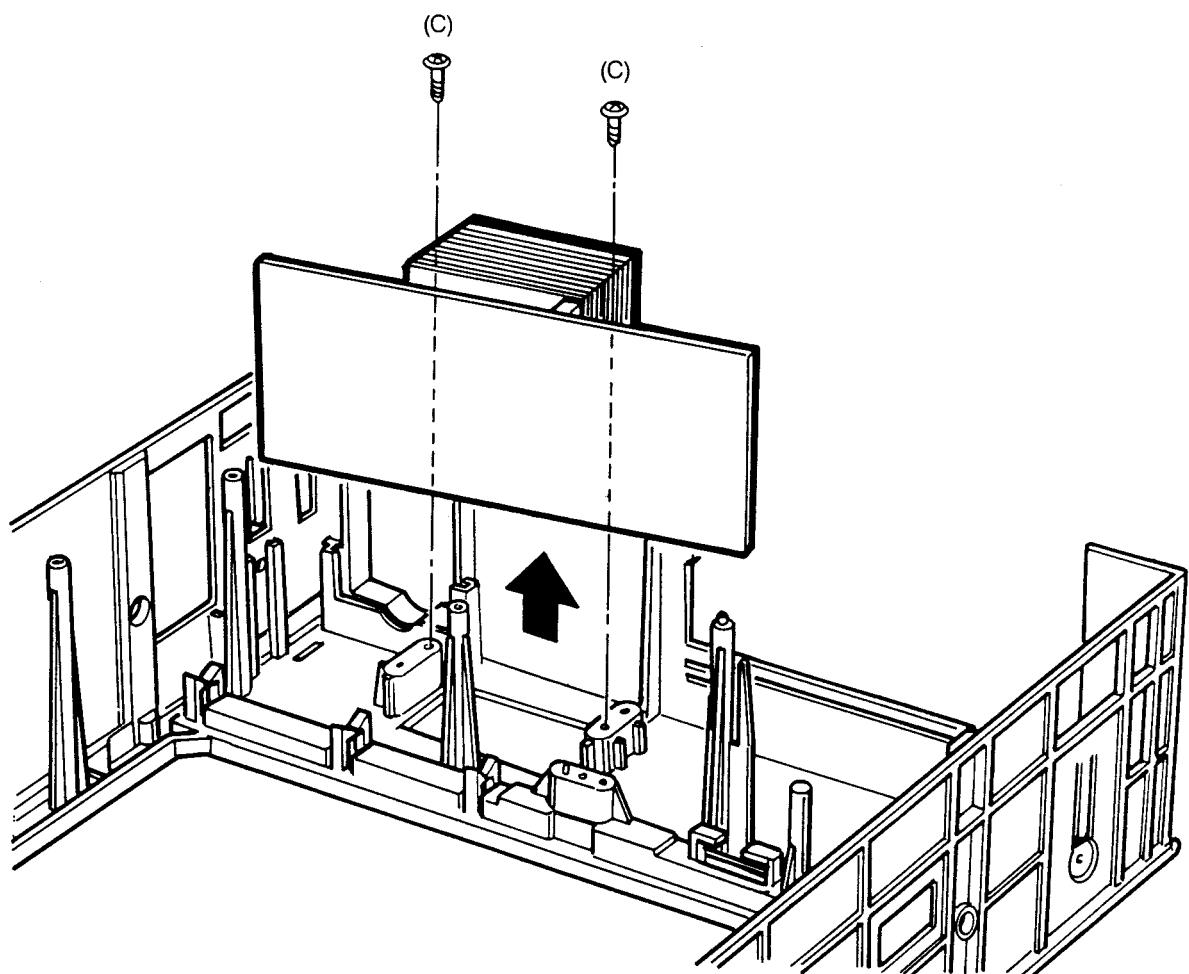


Fig. 2-2-3

## 2-2-4 Y/C 1 Circuit Board

- A. Remove screw (D) from Holder PWB.
- B. Remove Holder PWB and then lift Y/C PWB up.

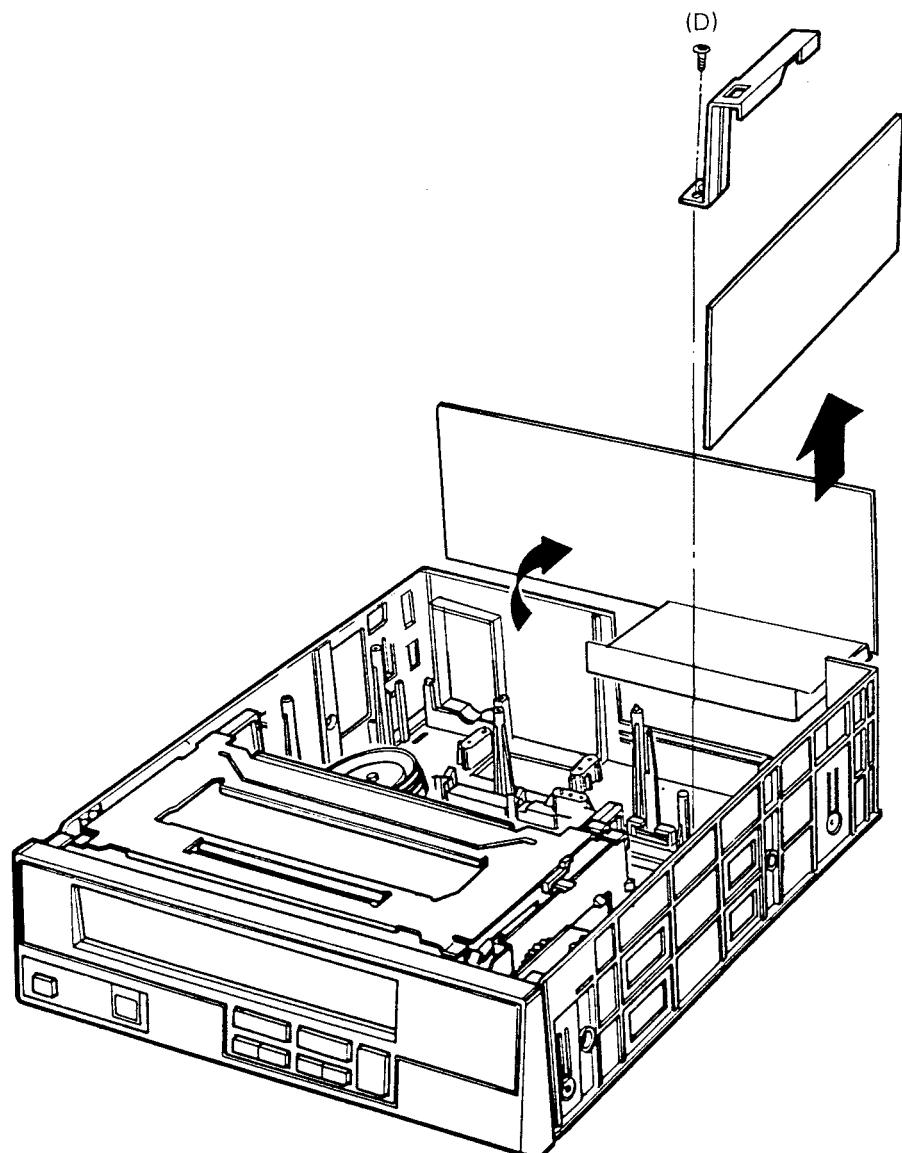


Fig. 2-2-4

## 2-2-5 Pre-Amp Circuit Board

- A. Remove two screws (E).
- B. Remove bracket Pre-Amp from Pre-Amp package.
- C. Remove Pre-Amp package from Main Frame.
- D. Remove Pre-Amp Circuit board from Pre-Amp package.

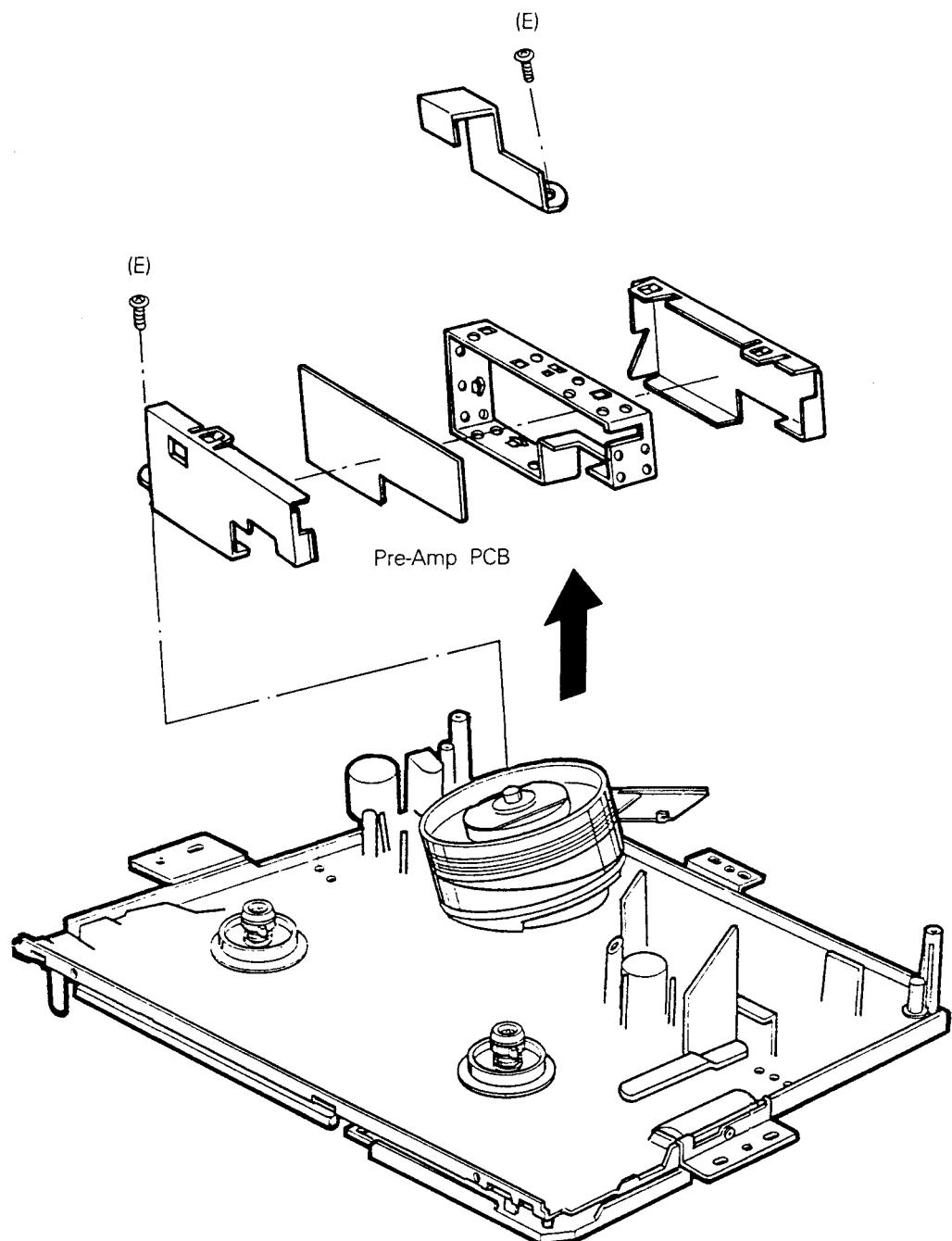


Fig. 2-2-5

## 2-3 REMOVING MECHANICAL PARTS

### 2-3-1 Mechanical Parts Locations

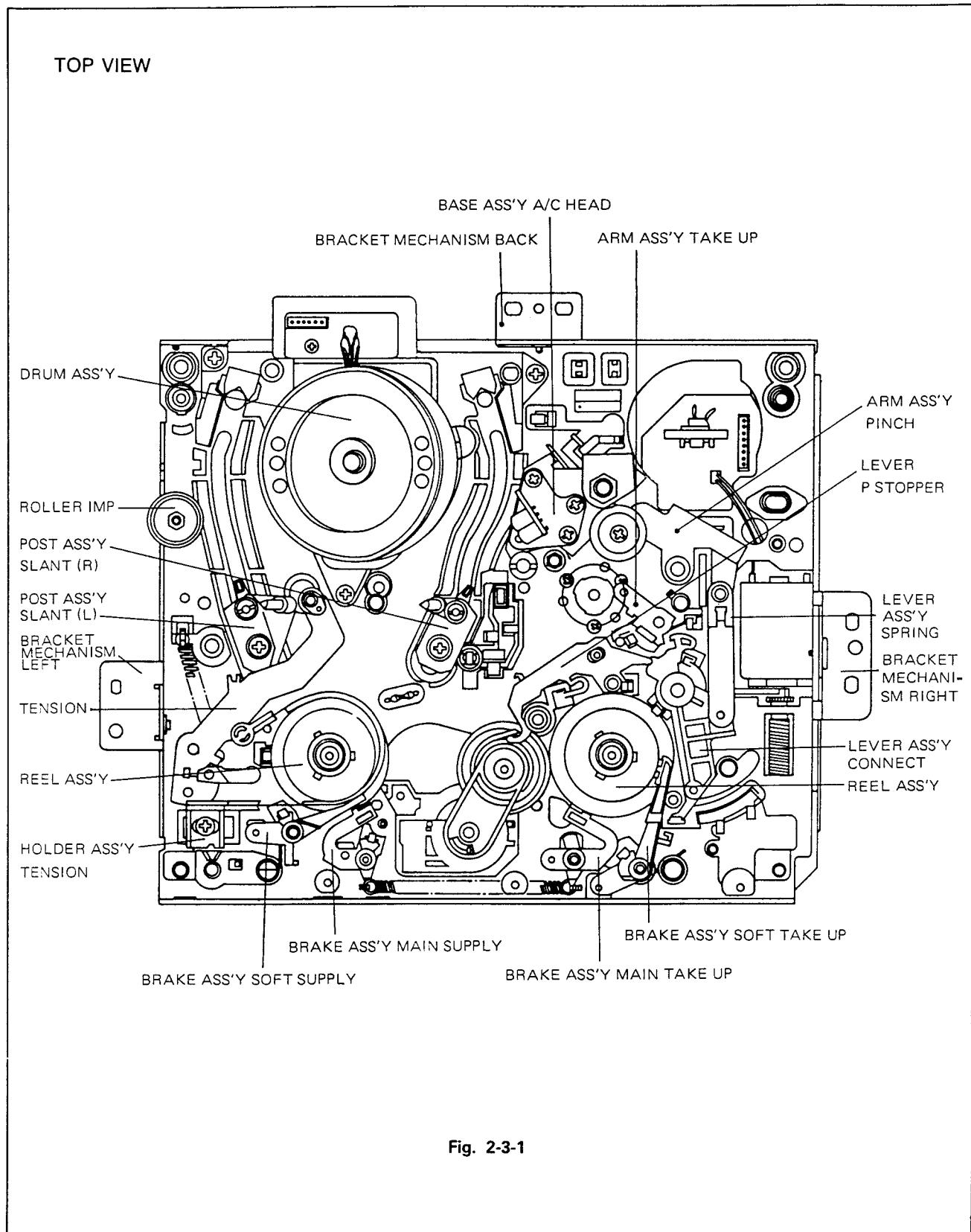


Fig. 2-3-1

BOTTOM VIEW

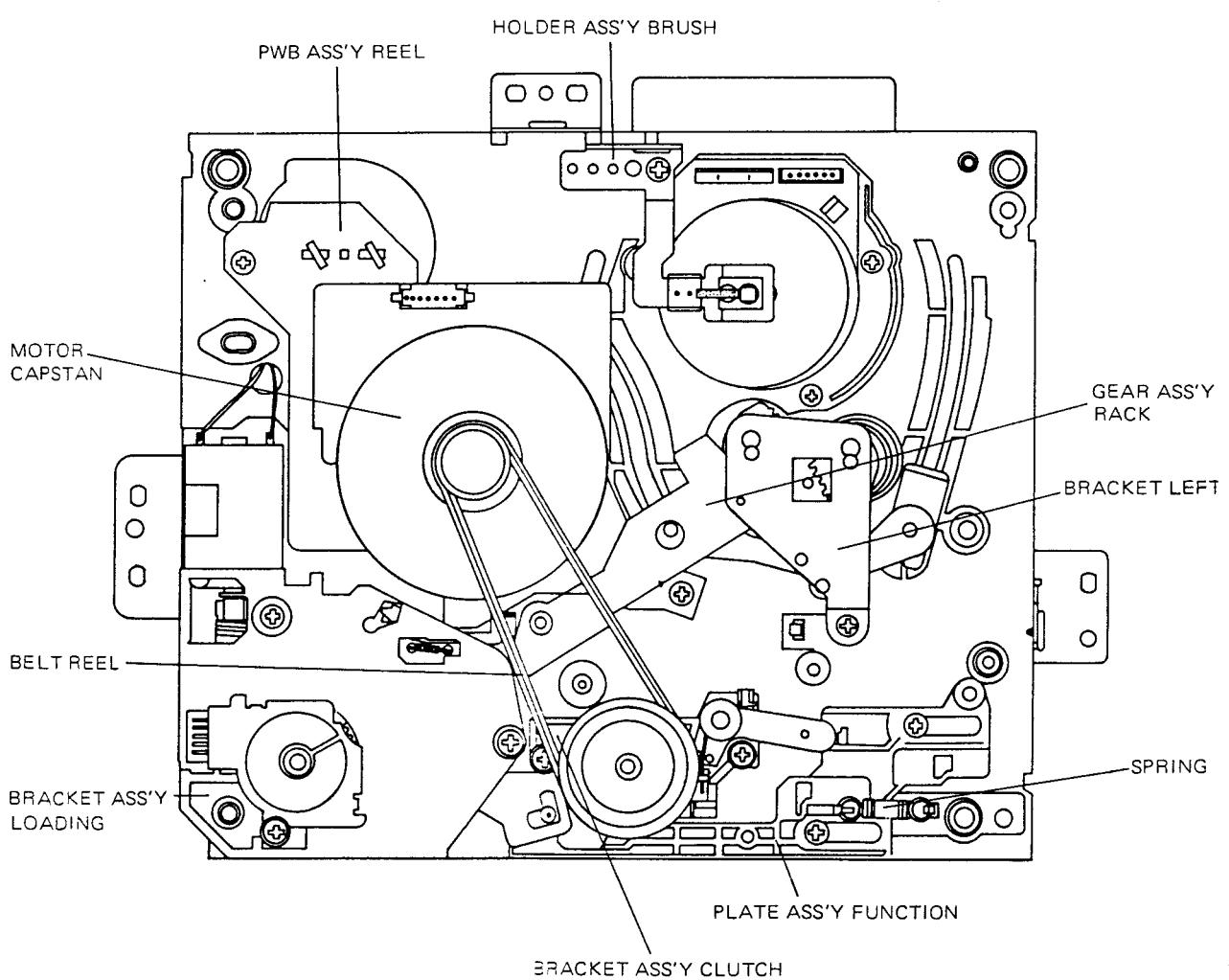


Fig. 2-3-2

FRONT LOADING MECHANISM (CASSETTE HOUSING) ASSEMBLY

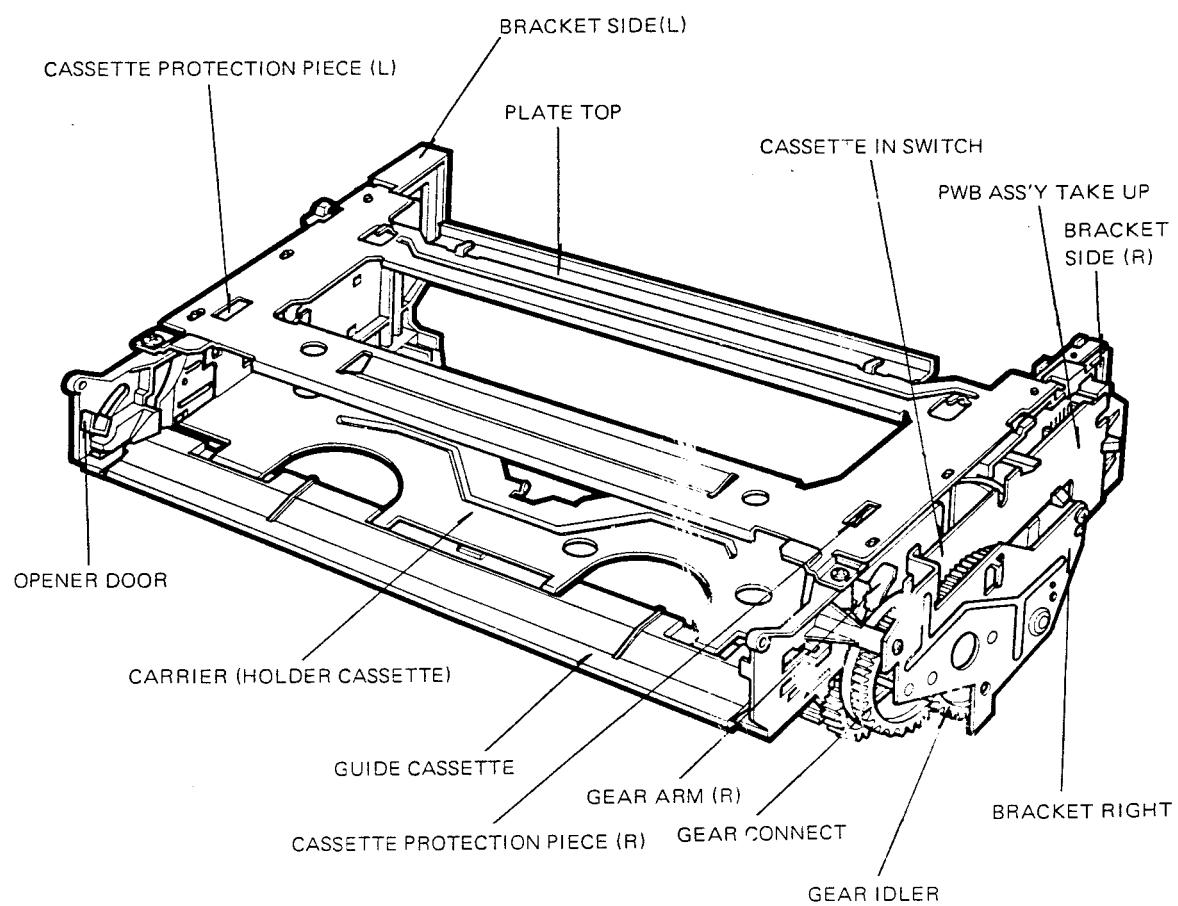


Fig. 2-3-3

### 2-3-2 Front Loading Mechanism(Cassette Housing) Assembly

- A. Remove wire connector.
- B. Remove two screws (A) and then lift Front Loading Mechanism up to remove it.

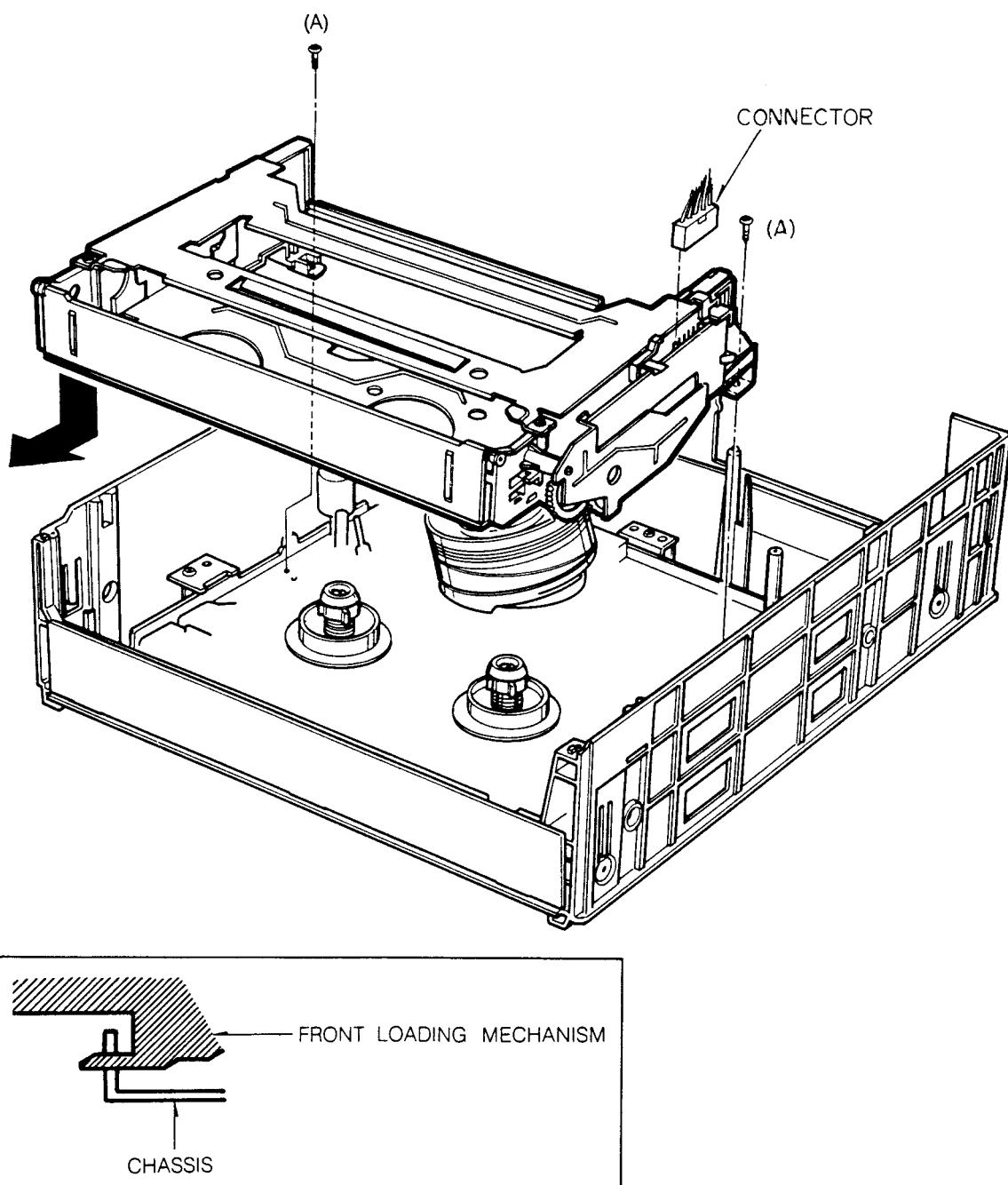


Fig. 2-3-4

### 2-3-3 Deck Assembly

- A. Remove six wire Connectors.
- B. Remove three screws (B) and then lift Deck up to remove it.

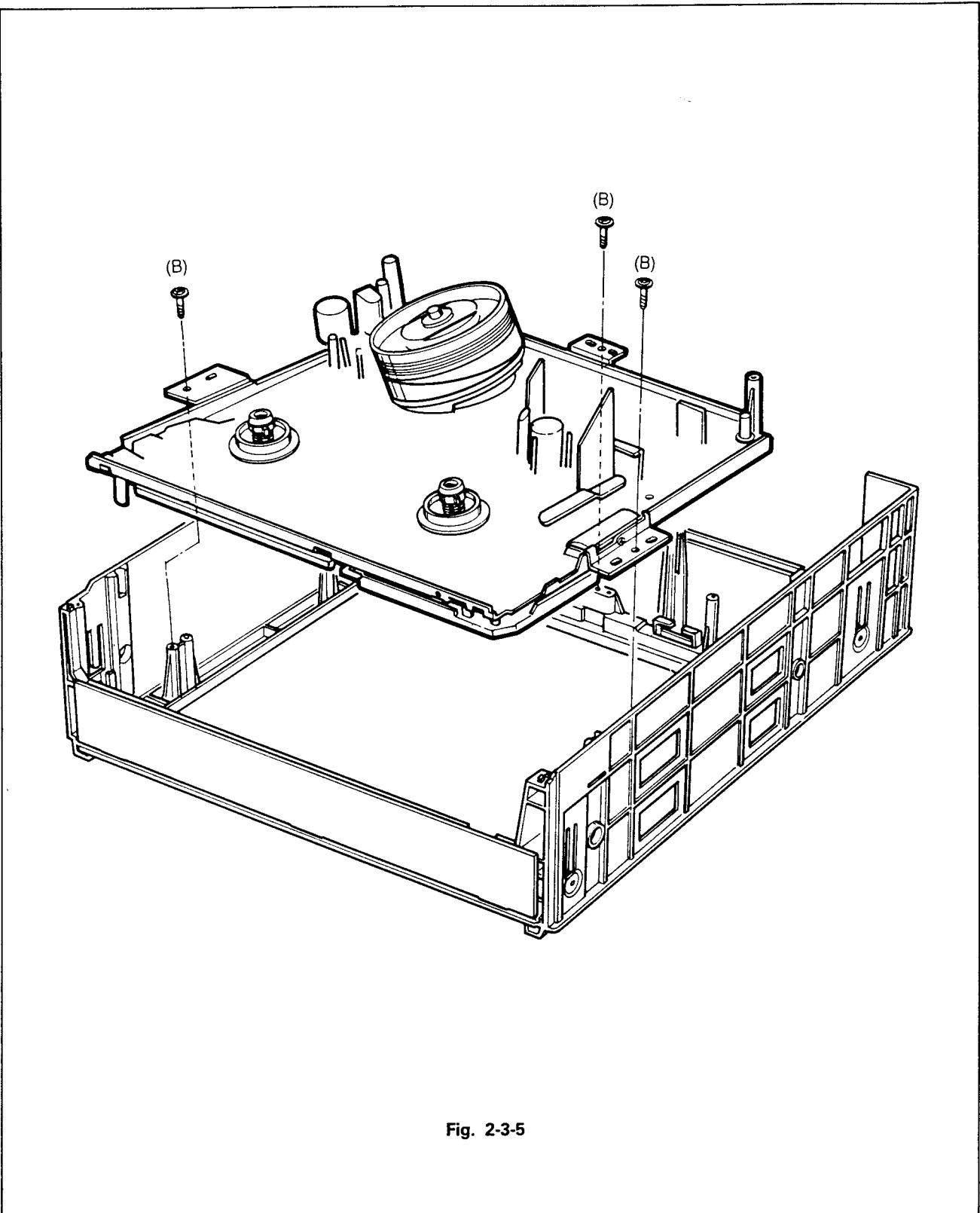


Fig. 2-3-5

### 2-3-4 Drum Assembly

- A. Remove three screws (A).
- B. Remove three screws (B) and then lift Drum Assembly up to remove it.

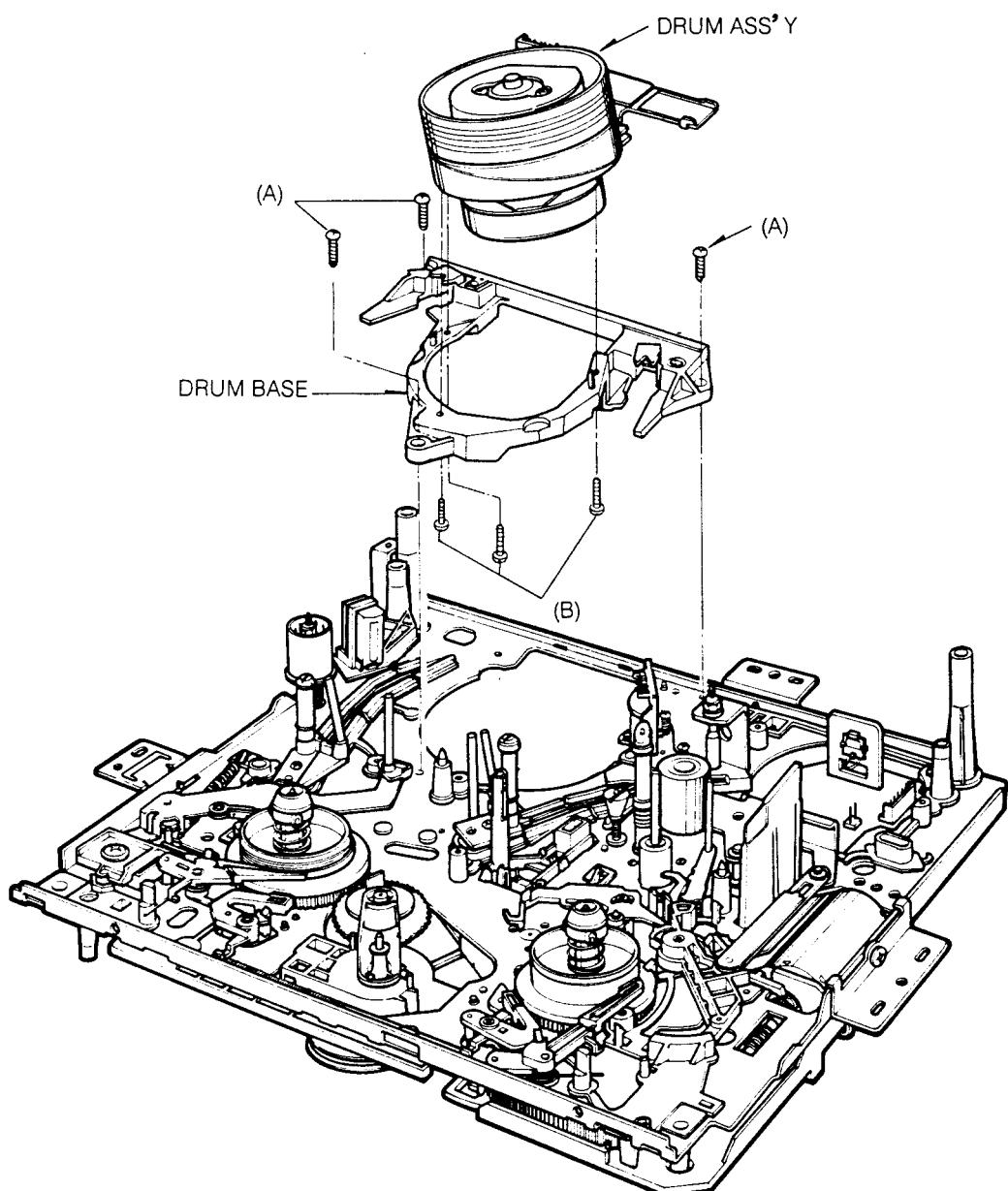


Fig. 2-3-6

### 2-3-5 Capstan Motor Assembly

- A. Remove the Belt.
- B. Remove three screws (C) and then drop Capstan Motor down to remove it.

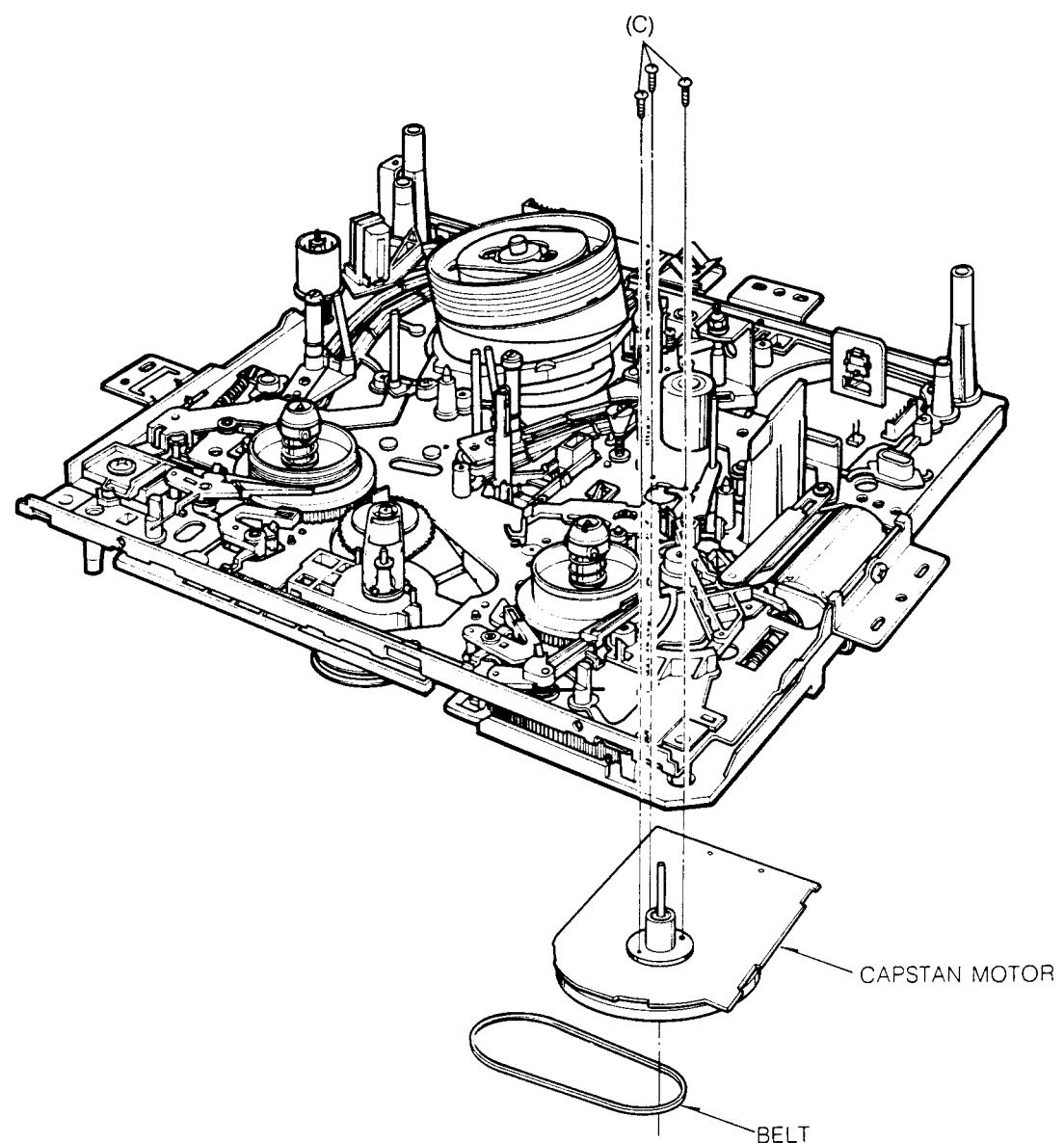


Fig. 2-3-7

### 2-3-6 Loading Bracket Assembly

- A. Remove three screws (D) and then drop Cam Loading bracket Assembly down to remove it.
- B. In case of assembling, while turning the Cam Gear

counterclockwise, make sure that the Location-Confirming-Hole is first set at the indicating position, as shown in Fig. 2-3-8.

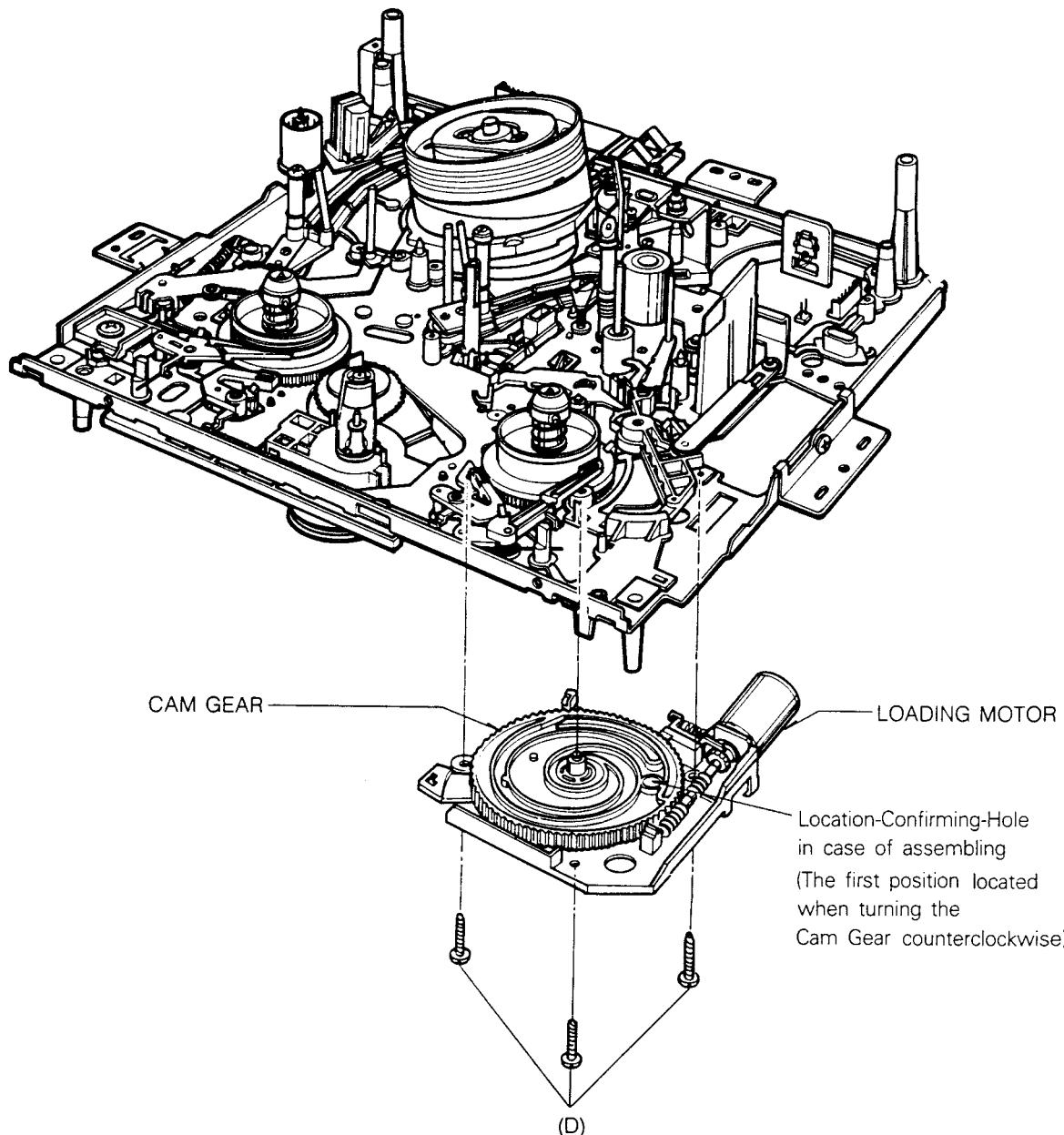


Fig. 2-3-8

### 2-3-7 A/C Head Bracket Assembly

- A. Remove the spring (E).
- B. Remove the Nut (F) and the washer (G).
- C. Remove two screws (H).

\*NOTE : It is possible to use the CONE NUT in substitute for the NUT(F) and WASHER(G).

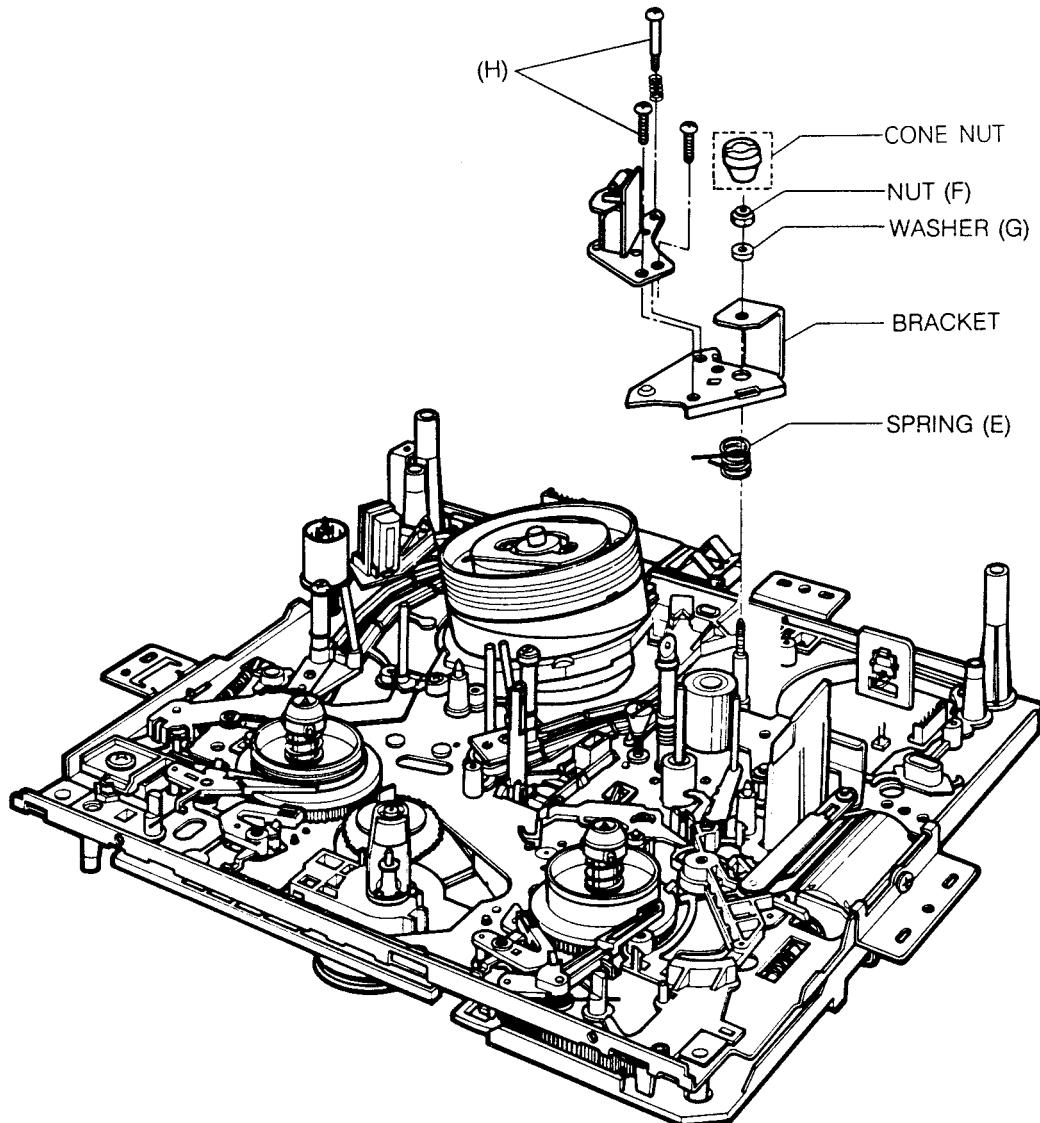
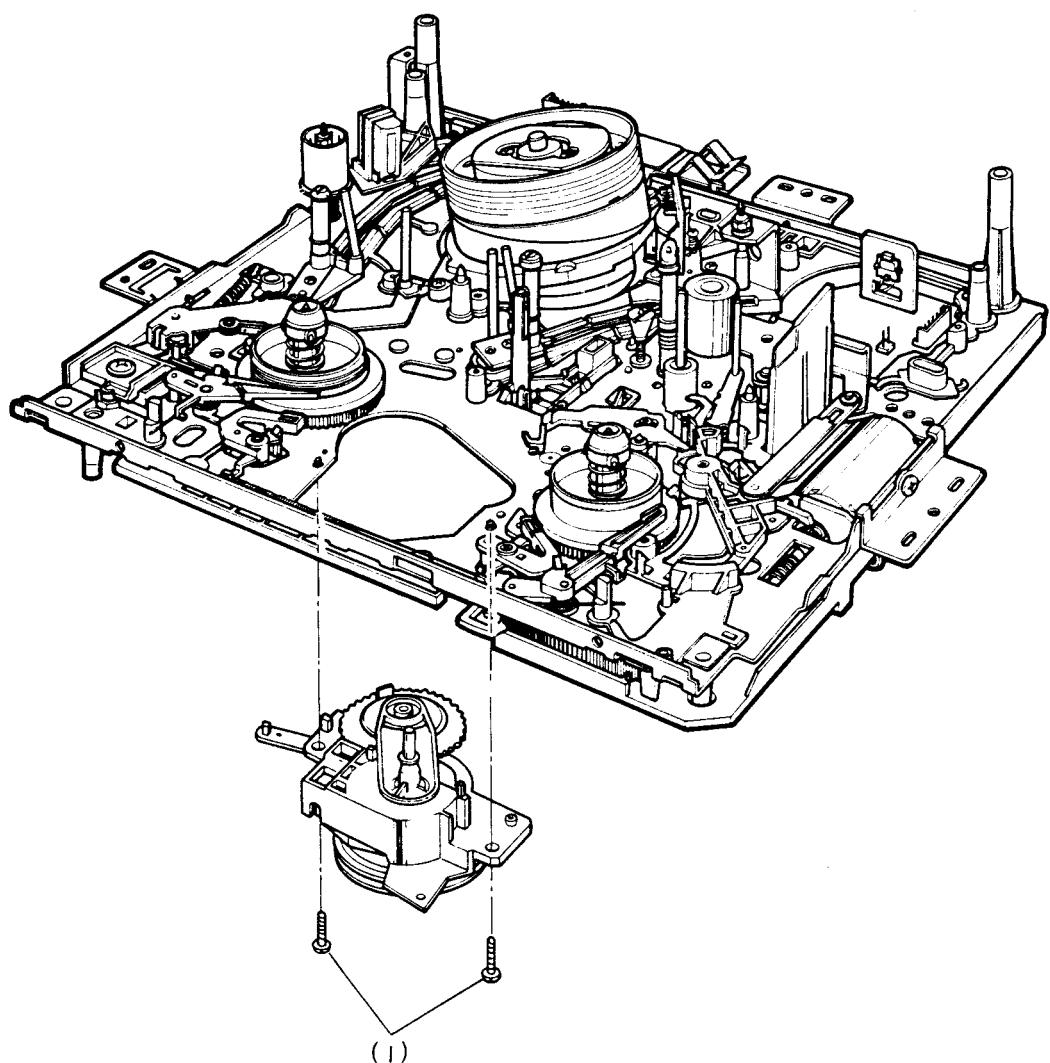


Fig. 2-3-9

### **2-3-8 Clutch Bracket Assembly**

A. Remove two screws (1) and then drop the Clutch Bracket Assembly down to remove it.



**Fig. 2-3-10**

### 3. ADJUSTMENT

#### 3-1 MECHANISM ADJUSTMENTS

##### \*\*PREPARATIONS FOR DECK ADJUSTMENT\*\*

- A. The connector should be connected after separating the Front Loading Mechanism from the Deck.
- B. Power is ON by pushing the Power Button. If the Power LED were in the ALARM mode(ie, if the Power LED blinks), push the Power Button once again.
- C. Push the Cassette Down Switch promptly and insert the tape into the Front Loading Mechanism 1 inch or more.
- D. When the Cam is rotated and the VCR plays, stop it by pushing the Stop Button and perform the Deck adjustment

##### 3-1-1 Brake Torque Measurements

###### 1) Main Brake Torque Measurement

###### A. Preparation

A Torque Meter with adaptor and 300g.cm and 600g.cm ATG.

###### B. Specifications

The value of the main brake torque in the STOP mode with a soft Brake attached.

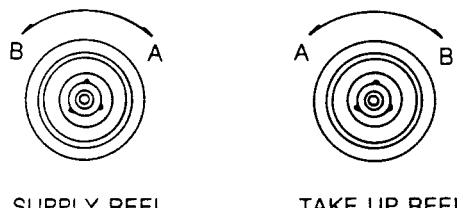


Fig. 3-1-1

	A side	B side
SUPPLY REEL	170cm min	—
TAKE UP REEL		

##### \*\*REFERENCE\*\*

Use the 600g.cm ATG Torque Meter when measuring the A side.

###### C. Measurement

In the first place, place the Torque Meter on each Reel Table (as shown in Fig. 3-1-2).

Turn the torque meter in the directions of the arrow (as shown in Fig. 3-1-1) and take the average value of the measurement at least three times when the Reel Table begins slipping.

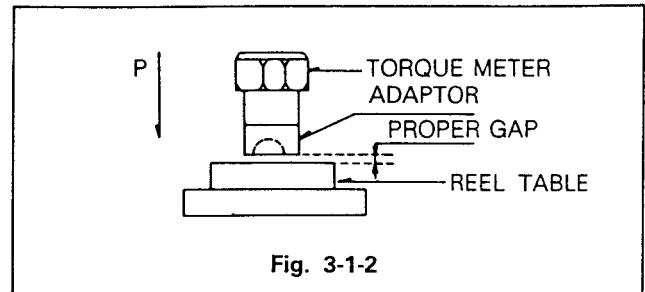


Fig. 3-1-2

##### \*\*CAUTION\*\*

The weight and power of the Torque Meter should not rest on the Reel Table in the "P" direction.

###### 2) Soft Brake Torque Measurement

###### A. Preparation

A Torque Meter with adaptor and 90g.cm ATG.

###### B. Specifications

Not concerned with the directions of A and B(as shown in Fig. 3-1-1).

SUPPLY REEL	30 ± 5g.cm
TAKE UP REEL	23 ± 5g.cm

###### C. Measurement

- a) Perform this measurement after the Main Brake is completely separated from the Reel Table.
- b) Keep the order of the Main Brake Torque Measurement in this measurement, too. (Refer to item C of 3-1-1)

##### \*\*CAUTION\*\*

Measure the Supply Reel in the FF/REW Mode and the Take Up Reel in the REW Mode

#### 3-1-2 The Pre-Adjustment of Tension Post Position.

###### A. Preparations

- a) Tension Post Position Adjusting Jig
- b) Driver (-) type ø3
- c) Driver (+) type ø3

###### B. Specifications

A size : 93.6mm ± 0.3mm

###### C. Adjustment

- a) Perform tape loading without inserting a tape.
- b) Place the Tension Post Position Adjusting Jig on the Deck.
- c) Loosen the screw a little(as shown in Fig. 3-1-3).
- d) Insert the (-) type driver between the Holder Band (A) and the 'V' groove of the chassis.
- e) Move the Holder Band (A) right and left to enable the Tension Post to touch on the reference surface.
- f) Secure the screw in state e) and d).

### \*\*CAUTION\*\*

The Tension Post Jig should touch the reference surface softly without side pressure.

g) Make sure that the position of the Tension Post is correct after adjusting and securing the screw.

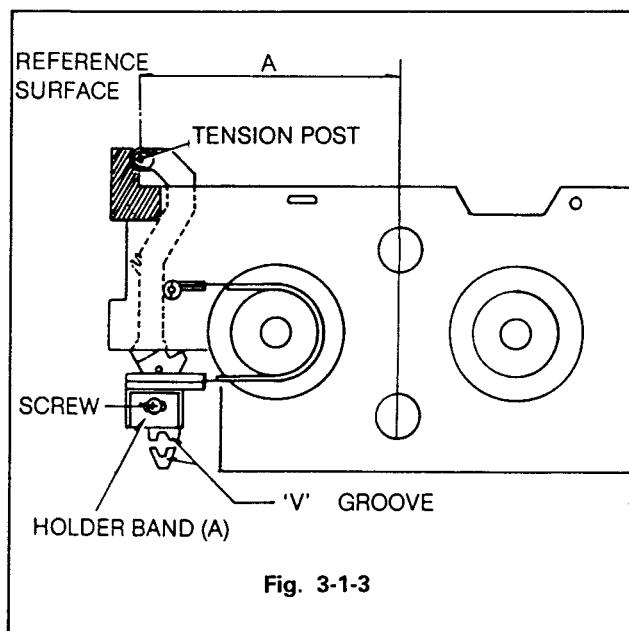


Fig. 3-1-3

### 1) Reel Table Height Adjustment

#### A. Preparation

a) Reel Table Height Adjusting Reference Jig(from chassis reference surface).

#### B. Specifications

a)  $13\text{mm} \pm 0.2\text{mm}$ (from chassis reference surface).

#### C. Measurement

a) Adjust the height after measuring the upper surface of the supply and take-up reel table. If height is off by more than  $\pm 0.2\text{mm}$ , adjust it to within  $\pm 0.2\text{mm}$  by using three kinds of poly slide washers. ( $t 0.13$ ,  $t 0.25$ ,  $t 0.5$ )

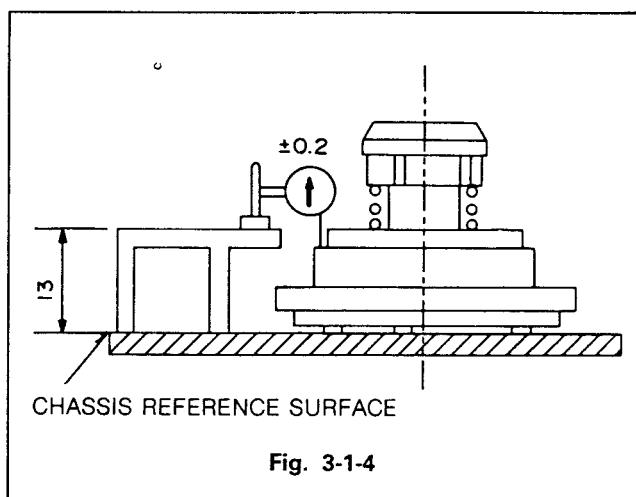


Fig. 3-1-4

### 3-1-3 Back Tension Measurement

#### A. Preparations

a) SRK-VHT 100 Torque Meter(Cassette type).  
b) Set(Playing in the SP mode)

#### B. Specifications

Back Tension of Supply Reel :  $47.5\text{g.cm} \pm 3\text{g.cm}$

#### C. Adjustment

a) Place the SRK-100 Torque Meter on the Deck and observe the meter.

b) If the result is abnormal

(a) over the standard : loosen the screw, move the Holder Band (A) right a little, tighten the screw and make sure that this adjustment is correct.  
(b) below the standard : loosen the screw, move the Holder Band (A) left a little, tighten the screw and make sure that this adjustment is correct.

### \*\*CAUTION\*\*

The tape for Torque Meter measurement should be recorded in the SP mode, and kept without any damage or fold.

### 3-1-4 The First Adjustment of the Transport System

The first adjustment of the transport system is for the adjustment of mechanical position and values of Deck.

### 2) P1, P2, P3, P4 and A/C Head Base Height Adjustment

#### A. Preparations

a) P1, P2, P3, P4 and A/C Head Base Height Adjusting Reference Jig(from the Chassis Upper Surface).

b) Adjusting driver M3 Nut Driver.

#### B. Specifications

	P1	P2	P3	P4	A/C HEAD BASE
TOP					
BOTTOM	16.67	16.65	16.65	16.61	

\*Adjust within  $\pm 0.05$  from Specification Reference above.

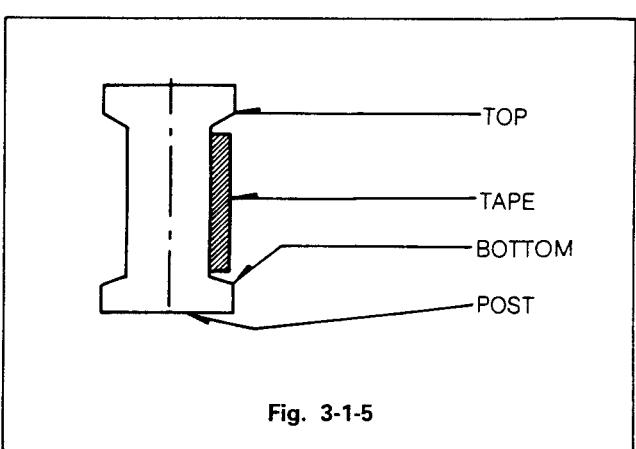


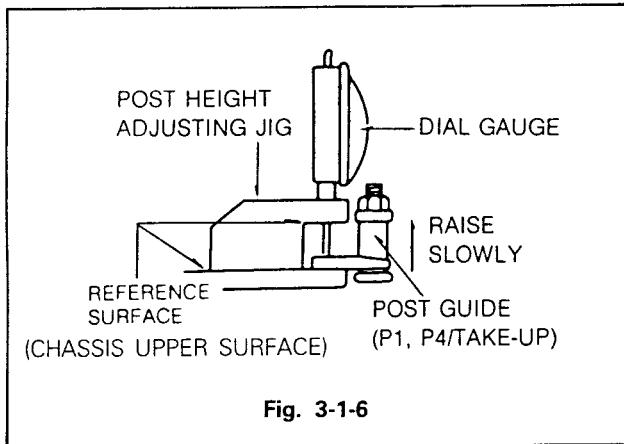
Fig. 3-1-5

C. Adjustment

a) Adjust P1 and P2 in the tape loading condition.

**\*\*CAUTION\*\***

I) The reference surface of the post height adjusting Jig is to be in complete contact with each guide(P1-P4) surface, as shown in Fig. 3-1-6.



II) Take care not to damage P1-P4 and other parts, when setting the reel table height adjusting reference Jig on the deck and using the reel table height adjusting Jig.

3) A/C Head Tilt Adjustment

A. Preparation

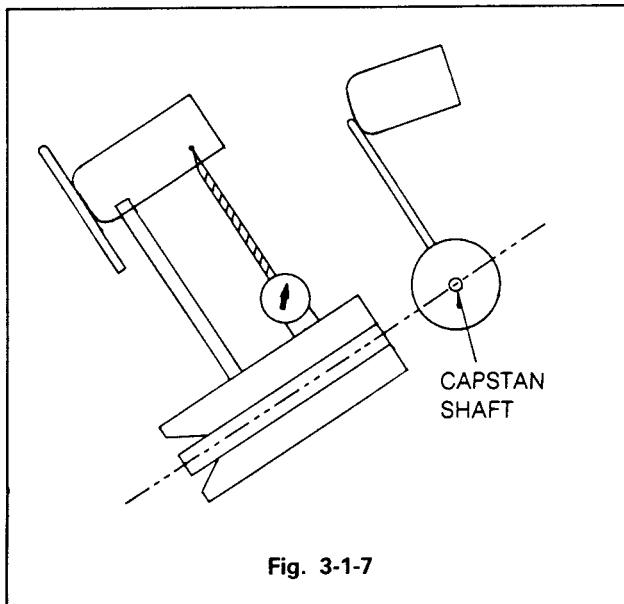
a) A/C Head Tilt Adjusting Jig(from Capstan Shaft Reference).

B. Specifications

a) +0.1~0.05mm(from Capstan Reference).

**\*\*CAUTION\*\***

Make sure that the tilt adjusting jig is correctly set at the '0' point.



4) Reel Output Torque Measurement

A. Preparation

a) SRK VHT(Cassette type torque meter)

B. Specifications

	SUPPLY	TAKE-UP	MEASURING METER
PLAY		80~170g.cm	SRK VHT300
CUE		80~190g.cm	SRK VHT404
REV	100~190g.cm	20±5g.cm	SRK VHT404
UNLOADING	110~250g.cm		SRK VHT404

C. Adjustment

a) After finishing the First Height Adjustment of each post, connect the Circuit Jig to Deck.  
b) Measure the Reel Out Torque in the SP mode.

**\*\*CAUTION\*\***

Pay attention to the '0' point correction of SRK CST Torque Meter.

### 3-1-5 The Second Adjustment of the Transport System

Perform the second adjustment of the transport system after completing the first Adjustment.

1) A/C Head Adjustment

A. Preparations

a) Oscilloscope  
b) Drive (+)type  
c) Adjusting driver  
d) M3 Nut Driver

B. Specifications

Audio at 7 KHz maximum point : -2dB or less

C. Adjustment

a) Connect the probe of oscilloscope to audio output jack.  
b) Readjust the audio height adjustment nut and tilt adjustment screw so that the audio 1K output is maximum by playing an alignment tape(2H 1K 7K).  
c) Adjust the azimuth adjustment screw so that the audio 7KHz output is maximum.  
d) After step b) and c), readjust the A/C Head height adjustment nut critically.

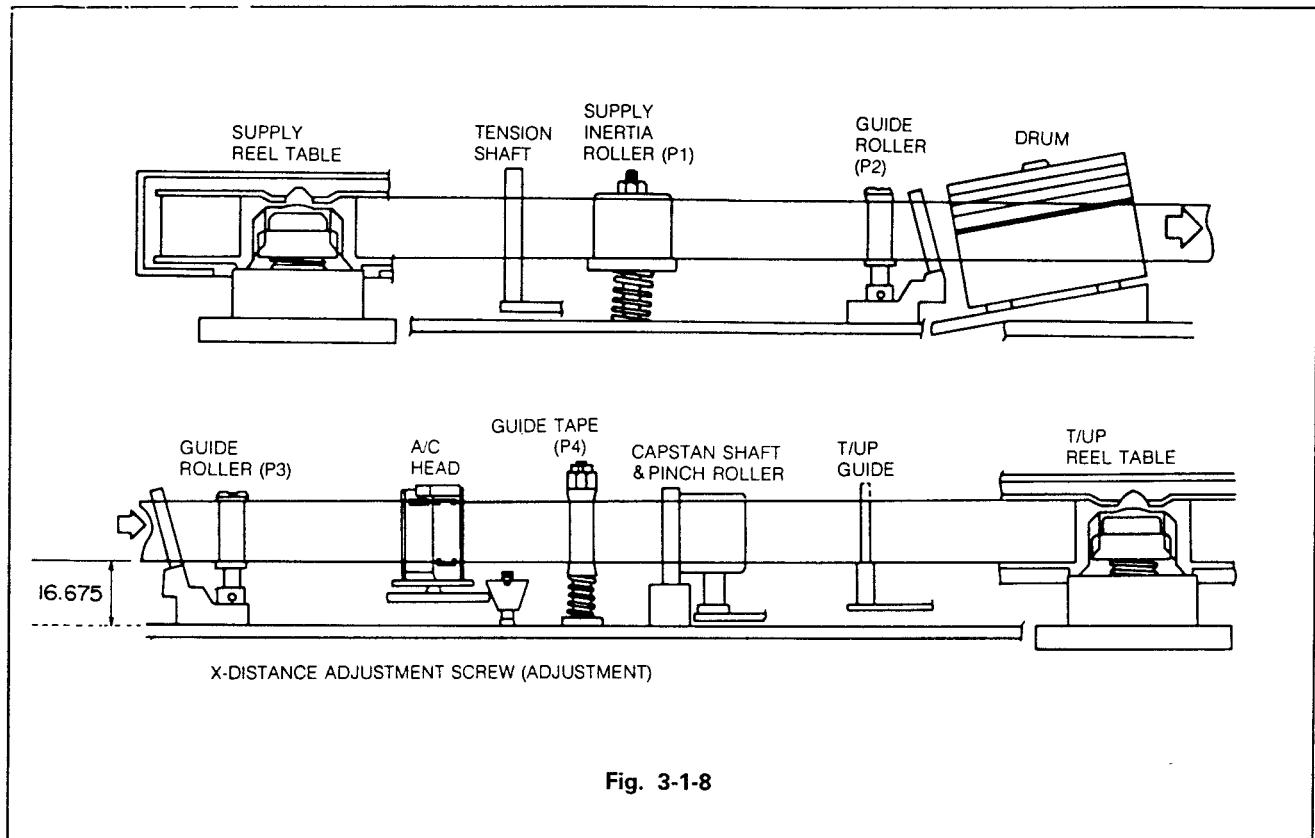


Fig. 3-1-8

**\*\*CAUTION\*\***

This adjustment should be performed after cleaning the Video Head carefully.

**\*\*CAUTION\*\***

Check the stability of this adjustment by tapping it slightly a few times.

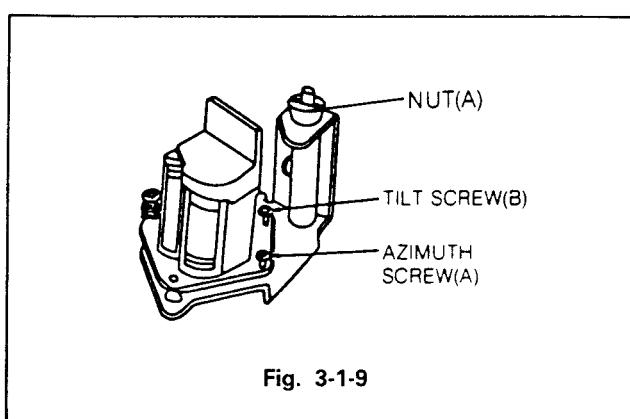
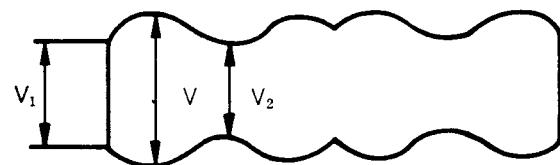


Fig. 3-1-9

B. Specifications



$$\begin{aligned}V_1/V_{\text{MAX}} &\geq 0.7 \\V_2/V_{\text{MAX}} &\geq 0.8 \\&\text{RF ENVELOPE OUTPUT}\end{aligned}$$

Fig. 3-1-10

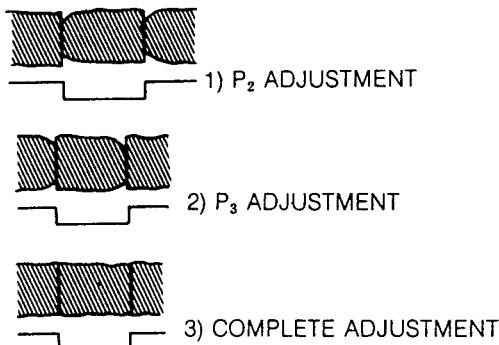
C. Adjustment

2) RF Envelope Linearity Adjustment

A. Preparations

- a) Oscilloscope
- b) M3 Nut Driver
- c) P2 Adjusting Bar
- d) 2H Alignment Tape

- a) Connect the probe of the oscilloscope to RF envelope output jack and head switching output jack.
- b) Play an alignment tape(2H : SP) after the audio adjustment is completed.
- c) Place the tracking volume at the maximum of RF cut, and evenly adjust P2, P3 as shown in Fig. 3-1-11.



**Fig. 3-1-11**

**\*\*CAUTION\*\***

Adjust carefully for the tape not to be folded or wrinkled on account of the excessive or insufficient adjustment.

3) X Distance Adjustment

A. Preparations

- a) Oscilloscope
- b) Adjusting Driver
- c) Standard Tape for 2H

B. Specifications

Adjustment in 3 : 2.9

C. Adjustment

- a) Connect the probe of oscilloscope to RF envelope output jack and head switching output jack.
- b) Turn Adjuster X with adjusting driver to maximum RF.

4) Tape Curl Condition

A. Preparations

- a) T-160 Tape
- b) a magnifier

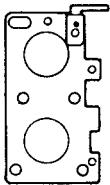
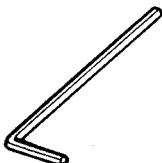
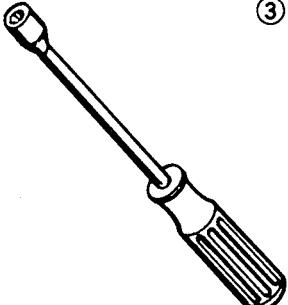
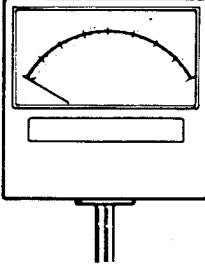
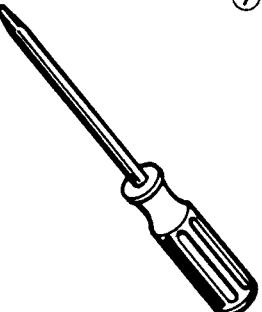
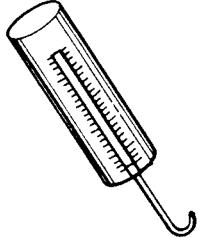
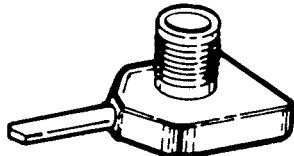
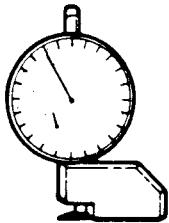
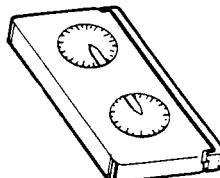
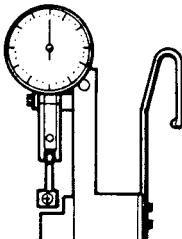
B. Specifications

At each transport post, the start, middle and end of the T-160 tape should not be folded.

C. Measurement

Running T-160 Tape, make sure with a magnifier both ends of the tape and the condition of each transport system post in the CUE, REV and PLAY mode do not cause folding.

### 3-1-6 Servicing Jigs and Tools

RJ40014 	①	T001 	②	
TENSION POST POSITION ADJUSTING		HEXAGONAL WRENCH (0.8mm)		M3 NUT DRIVER 
T007  600g.Cm 300g.Cm	⑤	T008  90g.Cm	⑥	BACK TENSION METER 
TORQUE METER				Ø3 (+) TYPE 
⑨ 	J40051B	⑩ 	RJ2003 	⑪ 
3Kg TENSION GAUGE		POST HEIGHT ADJUSTING	REEL TABLE HEIGHT ADJUSTING	SRK VHT404 VHF300
⑬ 				
TILT ADJUSTING				

3) PG Adjustment

MODE	SPEC.	Measurement Point	Adjustment Point
PLAY BACK	6.5H(416 μS)	W240, W390	VR201, VR202

A. This adjustment is for tracing each track exactly to have the phase division by 180° of VIDEO HEAD and accord Head Switching Point to VHS standard.

B. Adjustment

- Insert the test tape(PAL SP) and then set the VCP to the PLAY mode.
- Connect CH-1 Terminal of Oscilloscope to W240 and CH-2 Terminal to VIDEO OUT Terminal W390 of VCP.
- Adjust VR201/202 to trigger complex VIDEO signal of CH-2 to CH-1 H.SW so that the distance of A(B) Head selection point of H.SW signal the and starting point of vertical synchronization signal is 6.5H(416 μS, 1H=64 μS)

- Conversion of A/B HEAD SW signal use Polarity Invert Knob of oscilloscope.
- Reference and Caution
  - ± P.G Adjustment execute in the best condition of RF Level and locking condition of Servo System.
  - Adjusting location difference of A/B HEAD is within 20 μS.
  - Adjusting standard and implementation difference is within ±0.5H(32 μS)
  - Oscilloscope and VCP set should connect GND surely.

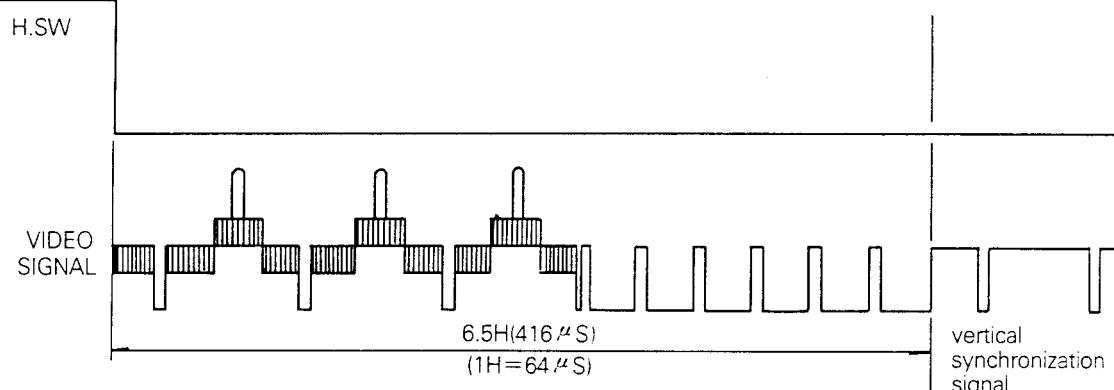


Fig. 3-2-2

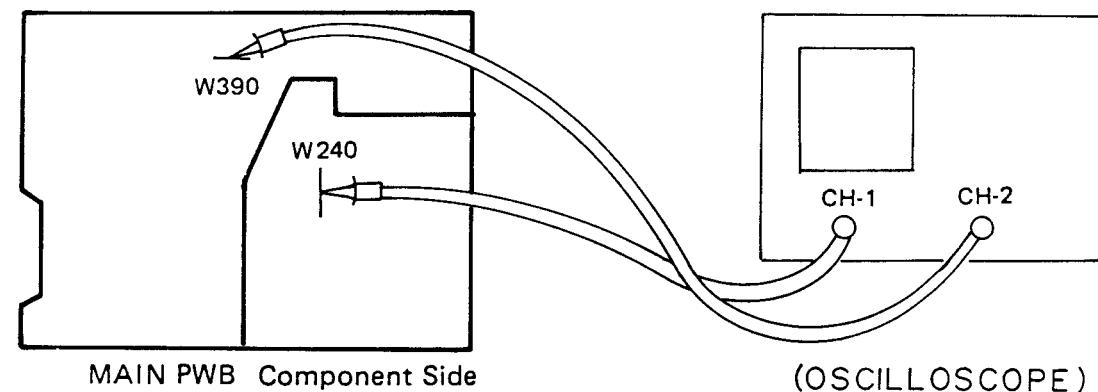


Fig. 3-2-3

## 3-2 CIRCUIT ADJUSTMENT

### 3-2-1 Servo Adjustment

1) Adjustment Parts Location

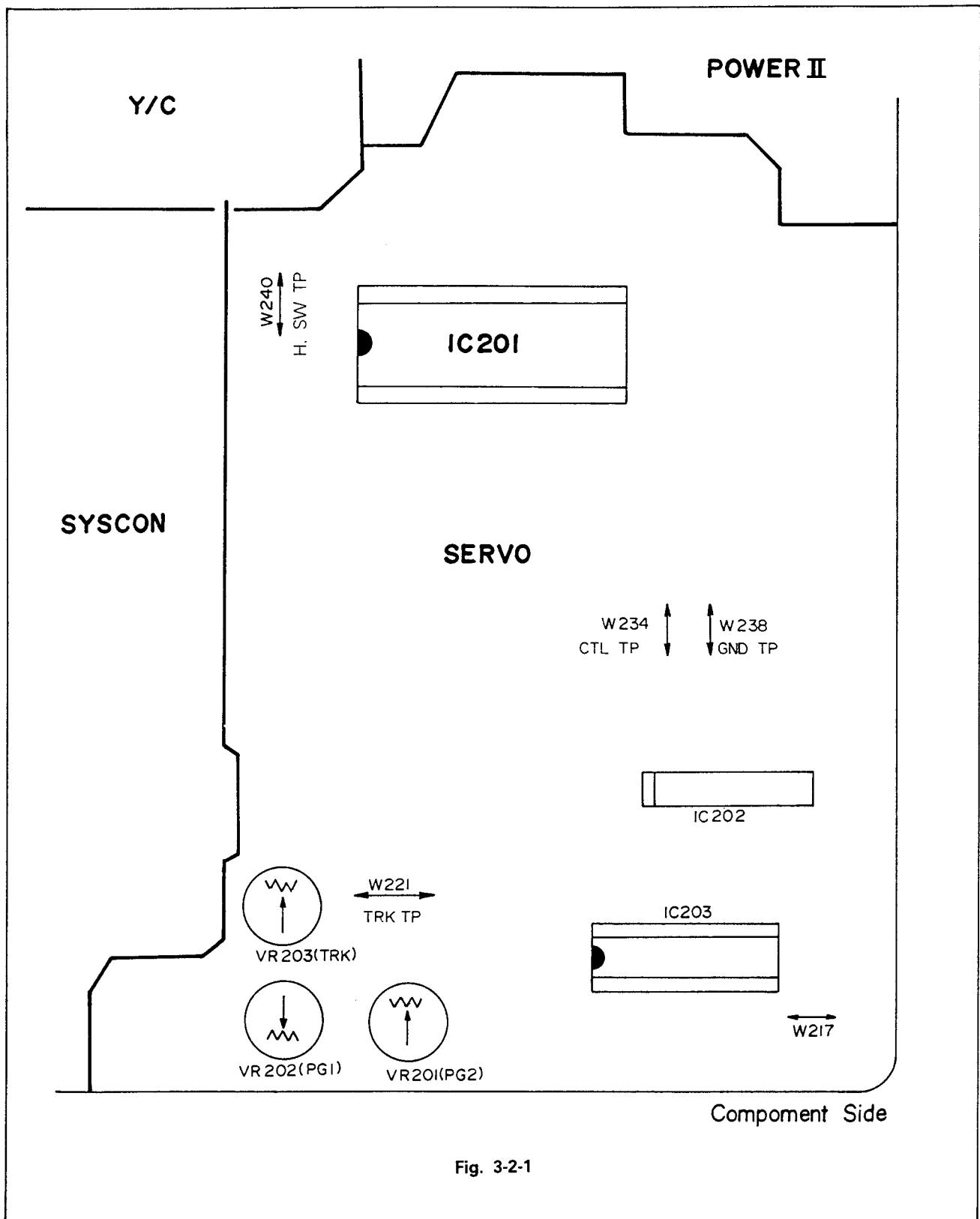


Fig. 3-2-1

### 3-2-2 Y/C Adjustment

#### 1) Y/C PWB Assembly Adjustment Point

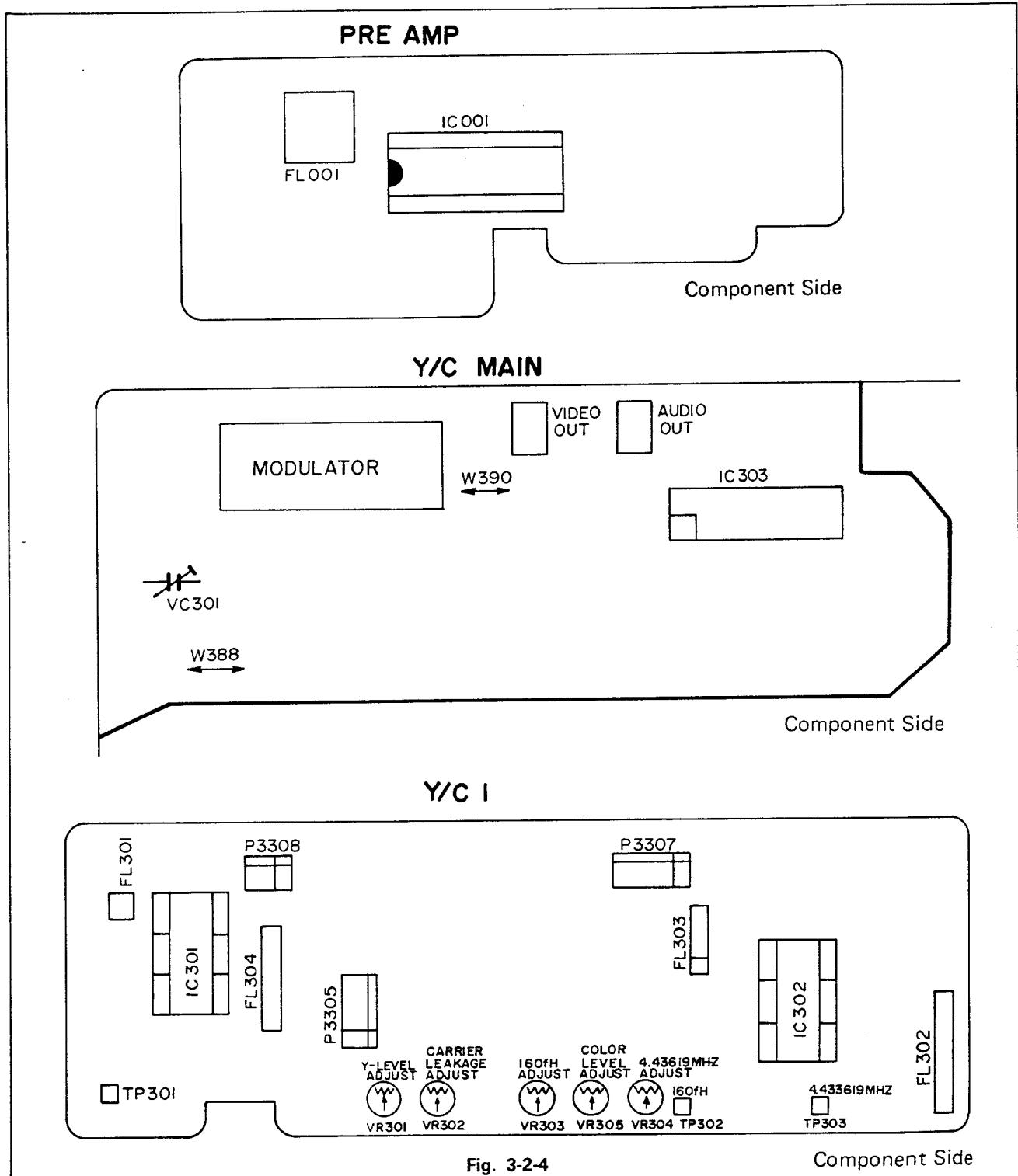


Fig. 3-2-4

Component Side

- 2) Standard of Input Signal
  - A. Video Level :  $1V_{p-p} \pm 0.1V$
  - B. Signal Composition
    - a) 4.43MHz 100% Color signal or Burst signal.
    - b) Chroma S/N Ratio is more than 50dB.
  - c) Signal composition ratio should be in accord with signal rules.
- C. Signal Efficiency
  - a) Luminance S/N Ratio is more than 60dB
  - b) Chroma S/N Ratio is more than 50dB.

2) Tracking Preset Adjustment

MODE	Specification	Measurement Point	Adjustment Point
PLAYBACK	Method 1	2.8mS	VR203
	Method 2	22.8mS	VR203

A. This adjustment is for VIDEO A/B Head tracing exactly each appropriate track according to the VHS standard.

B. Adjustment

(Method 1)

- a) Insert the tape(PAL SP) and then set the VCP to the PLAY mode.
- b) Connect CH 1(H.SW) of Scope to W240 and CTL to W217.
- c) Adjust VR203 to trigger at the H.SW starting point of CH 1 so that the distance between the starting point of "A" head and CTL pulse rising curve of CH 2 is 2.8mS.

(Method 2)

- a) Insert the test tape(PAL SP) and then set the VCP to the PLAY mode.
- b) Adjust VR203 to connect scope to W221 TRK M.M terminal so that the distance between starting and ending point of M.M is 22.8mS.

C. Reference and Caution

- a) TRK PRE SET Adjustment by method 1, 2 is carried out, centering external Tracking Knob.
- b) In case of CONTROL PULSE moving right and left, the middle point of displacement is selected and adjusted when adjusting TRK PRE SET by method 1, 2.
- c) The selection of method 1, 2 can be selected at will, in view of working condition.  
(Result of adjustment is same and difference by methods is right to neglect about 0.2mS.)
- d) Oscilloscope and VCP set should connect GND surely.

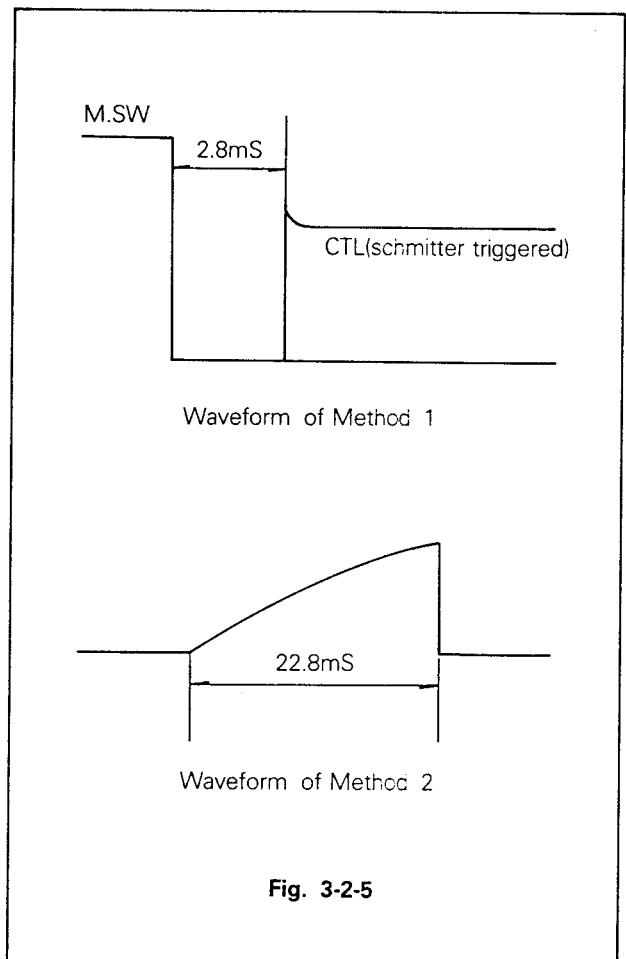
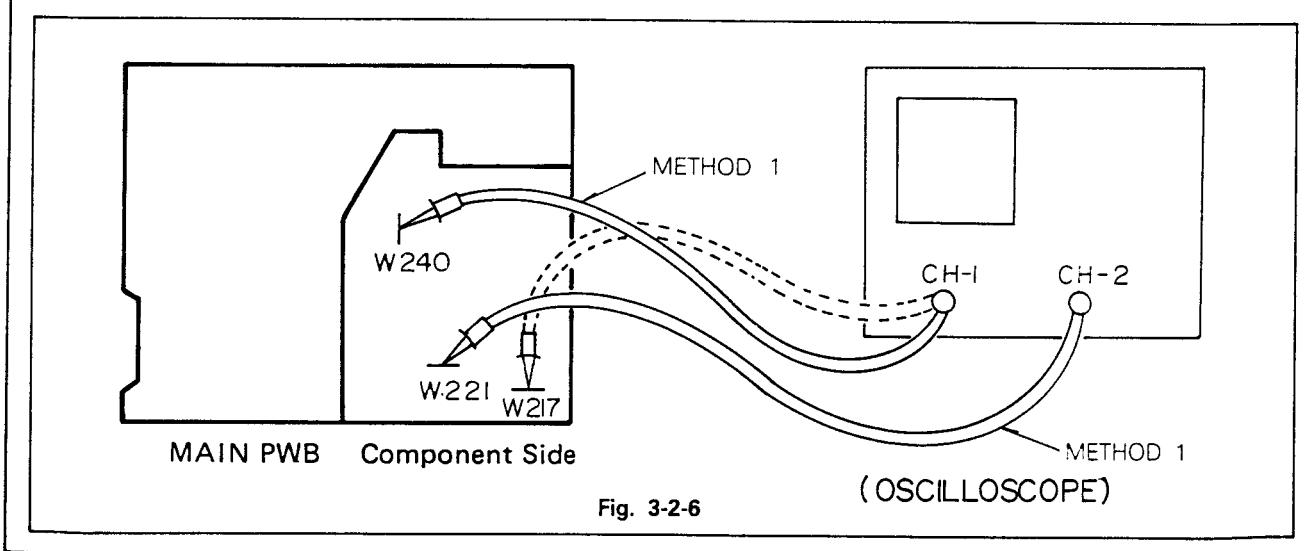


Fig. 3-2-5



3) FSC 2

MODE	Specification	Measurement Point	Adjustment Point
STOP	4.435572 MHz $\pm$ 50Hz	W388	VC301
a) Equipment : Frequency Counter b) Connection : Figure 3-2-7 c) Reference : Use and measure 1 : 1 Probe			

4) 40FH

MODE	Specification	Measurement Point	Adjustment Point
PLAY	625KHz $\pm$ 3KHz	TP302	VR303
a) Equipment : Frequency Counter b) Connection : Figure 3-2-8 c) Reference : Connect 470 $\Omega$ to IC302 Pin ⑩ and Diode(IS2471) to IC302 Pin ⑫ and give 9V. Use and measure 1 : 1 Probe to TP302.			

5) FSCI

MODE	Specification	Measurement Point	Adjustment Point
PLAY	4.433619MHz $\pm$ 50Hz	TP303	VR304
a) Equipment : Frequency Counter b) Connection : Figure 3-2-9 c) Reference : Use and measure 1 : 1 Probe			

6) Playback Luminance Level

MODE	Specification	Measurement Point	Adjustment Point
PLAY BACK	$2V_{p-p} \pm 0.2V$	W390	VR301

a) Playback standard Tape  
 b) Connection : Figure 3-2-11

Fig. 3-2-10

Y/C MAIN

MODULATOR

VIDEO OUT

AUDIO OUT

VC301

W388

IC303

Component Side

SCOPE

Fig. 3-2-11

7) Playback Chroma Level

MODE	Specification	Measurement Point	Adjustment Point
PLAY BACK	600mVp-p±50mV	W390	VR305

a) Playback Standard tape  
b) Connection : Figure 3-2-11

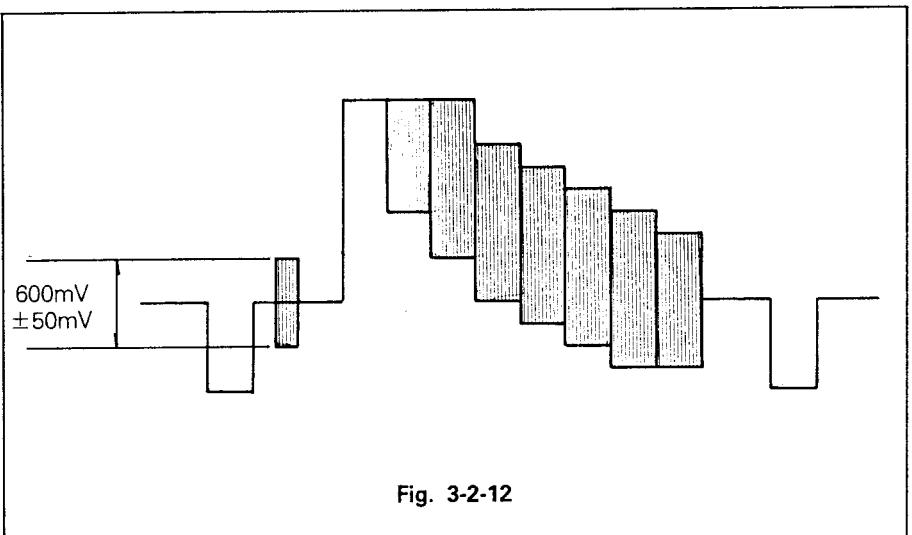


Fig. 3-2-12

8) Chroma Leakage

MODE	Specification	Measurement Point	Adjustment Point
PLAY BACK	MINIMIZE	W390	VP302

a) Playback Standard tape or recorder play  
b) Connection : Figure 3-2-11

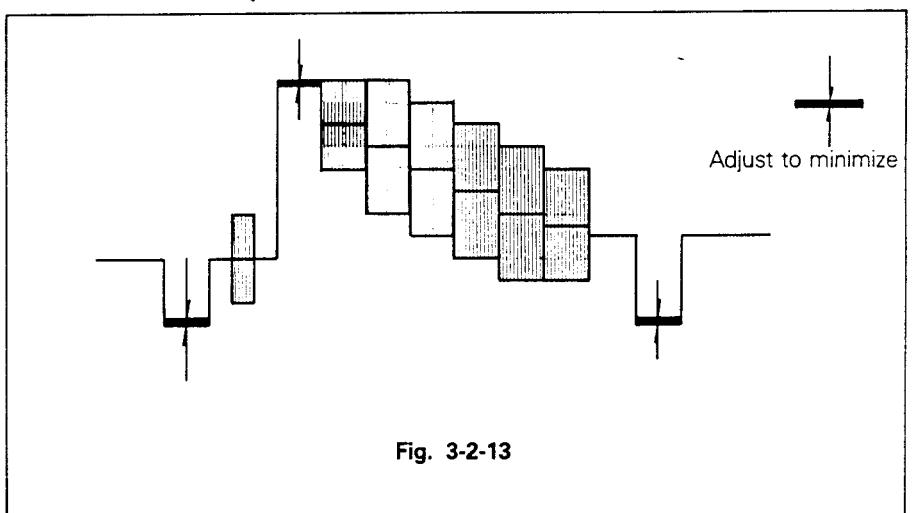


Fig. 3-2-13

9) Head Q & Balance

MODE	INPUT SIGNAL	Specification	Measurement Point	Adjustment Point
STOP	SWEET SIGNAL	Peak 4.43MHz	TP301	FL001

- a) Blank tape play back
- b) Signal input point
- c) Measurement
- d) Input Signal : BURST SIGNAL OFF  
SET UP OFF  
SYNC OFF
- e) Connection : Figure 3-2-16
- f) Reference : Electric source of Pre-Amp terminal  
gives 9V.

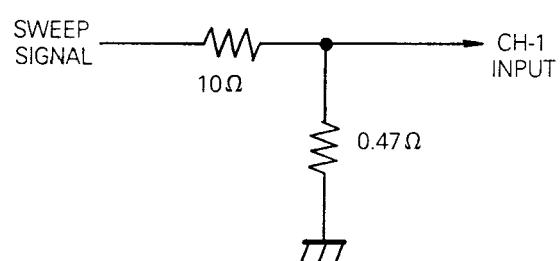


Fig. 3-2-14

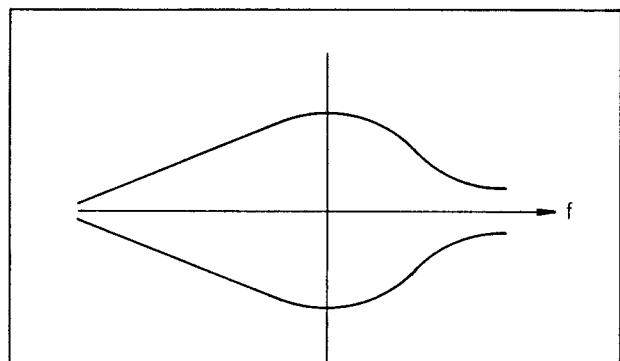


Fig. 3-2-15

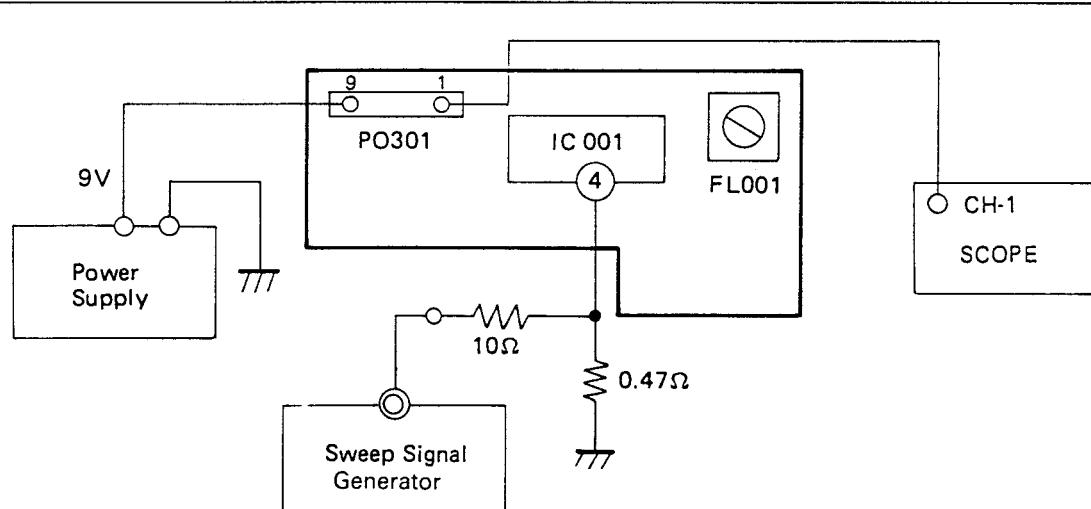


Fig. 3-2-16

### **3-2-3 Audio Adjustment**

#### **1) Playback Level Adjustment**

<b>MODE</b>	<b>Specification</b>	<b>Measurement Point</b>	<b>Adjustment Point</b>
PLAY BACK	-4dBm±1.5dBm	AUDIO OUT JACK	VR401

A. This adjustment is for Audio playback level being up to the standard.

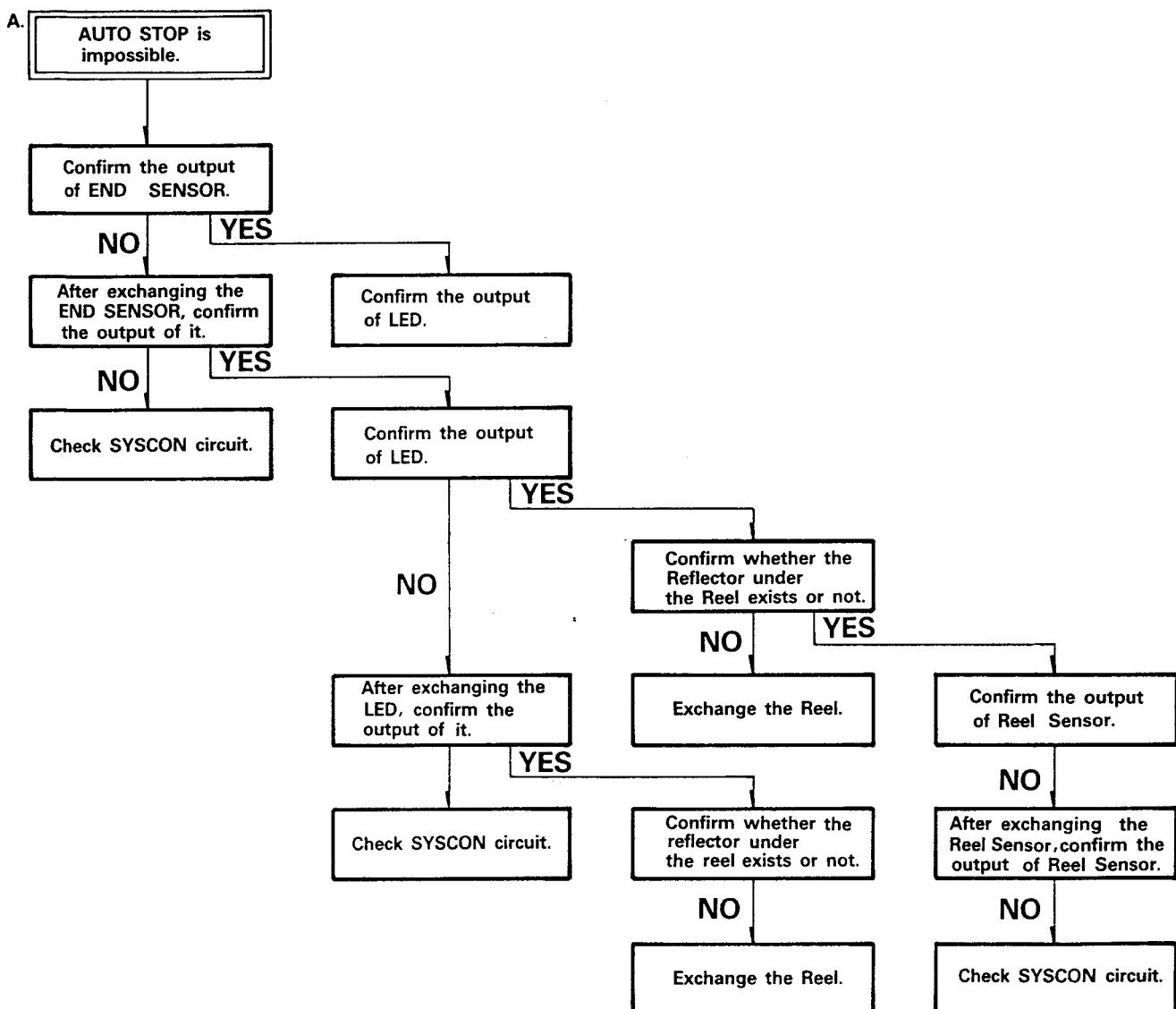
B. Adjustment

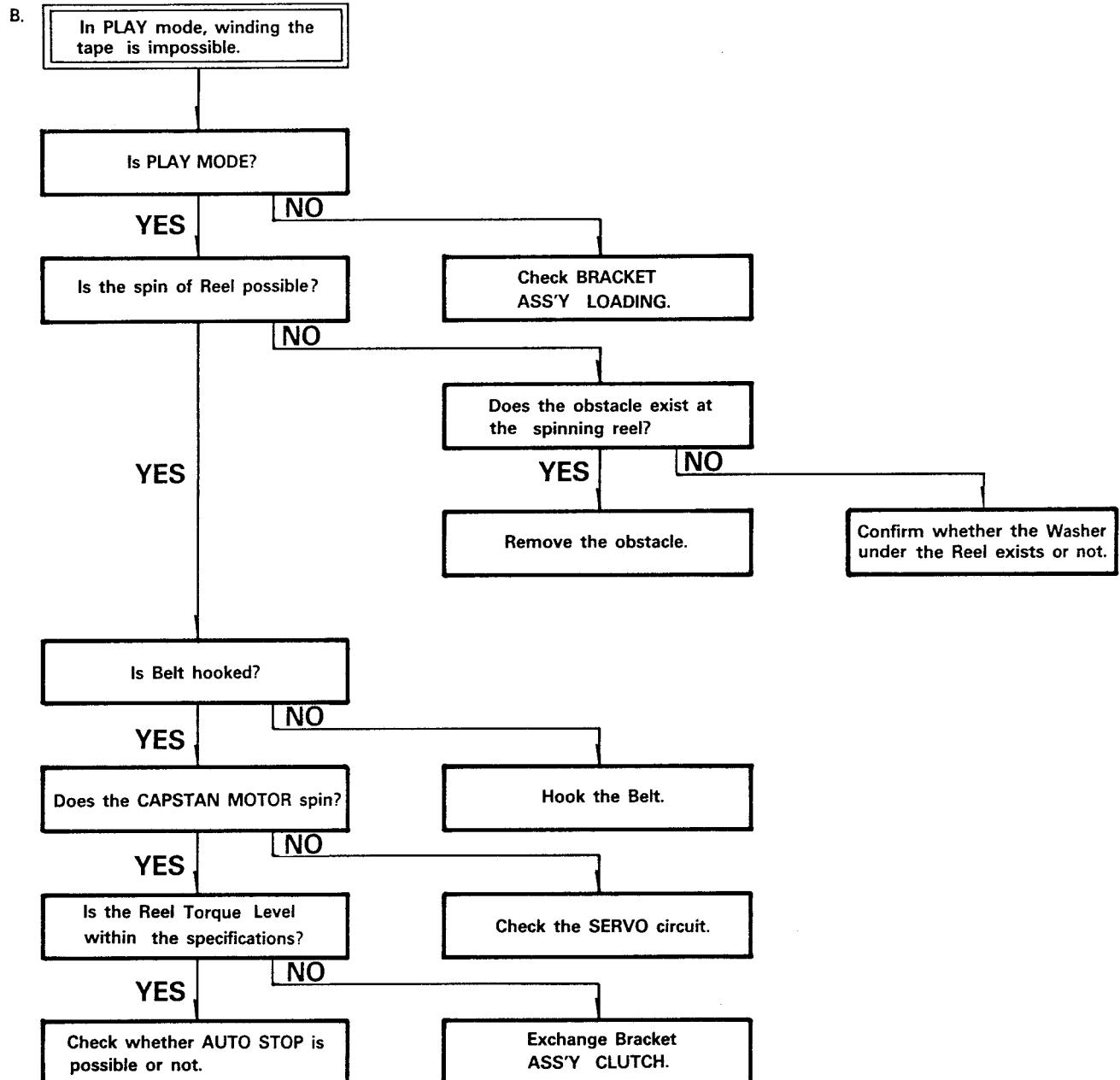
- After playing an alignment tape, adjust VR401 so that 1KHz level of level meter is -4±1.5dBm.
- At this time, adjust R/P Head azimuth so that 6KHz level is to be max.

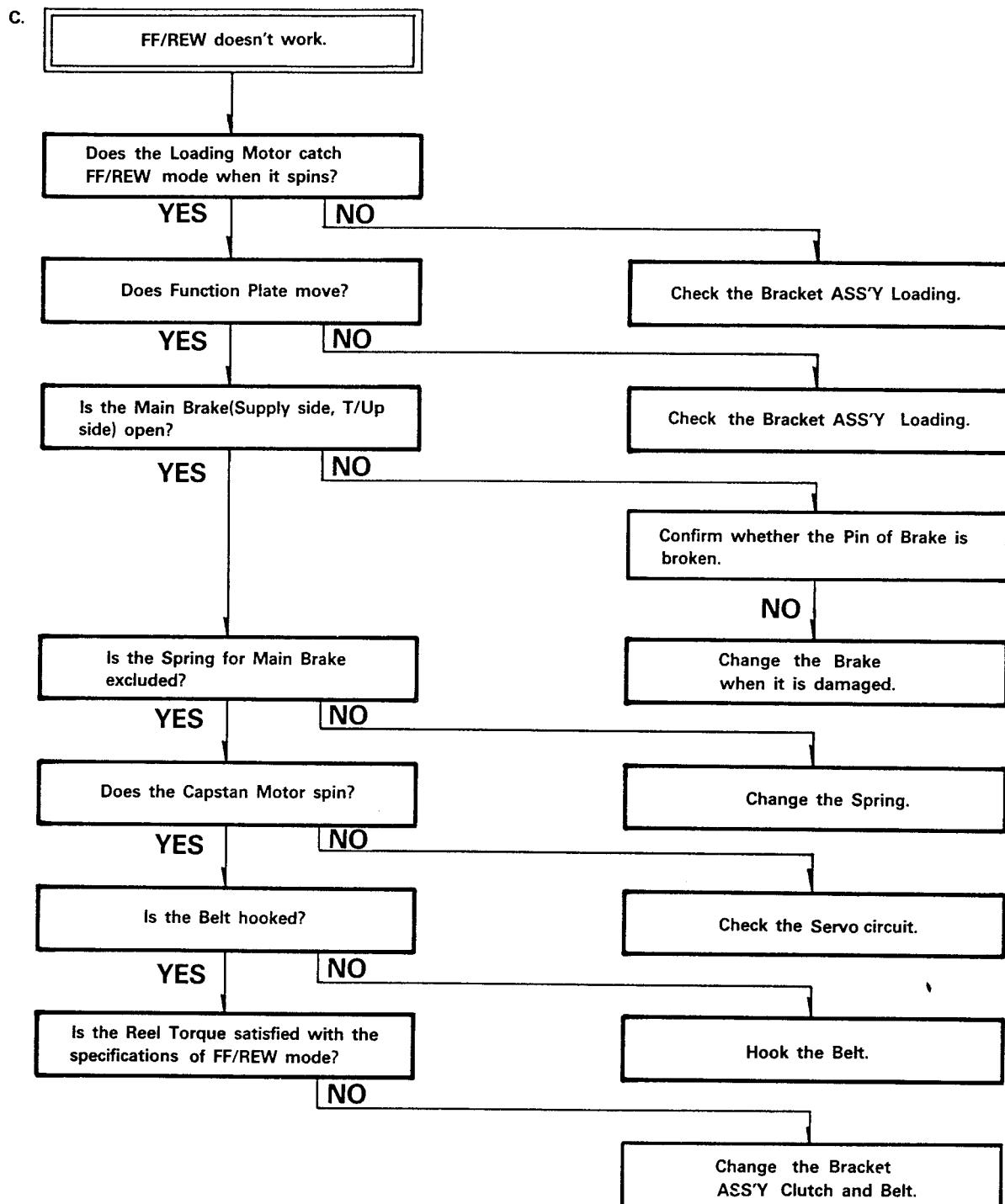
## 4. TROUBLESHOOTING GUIDE

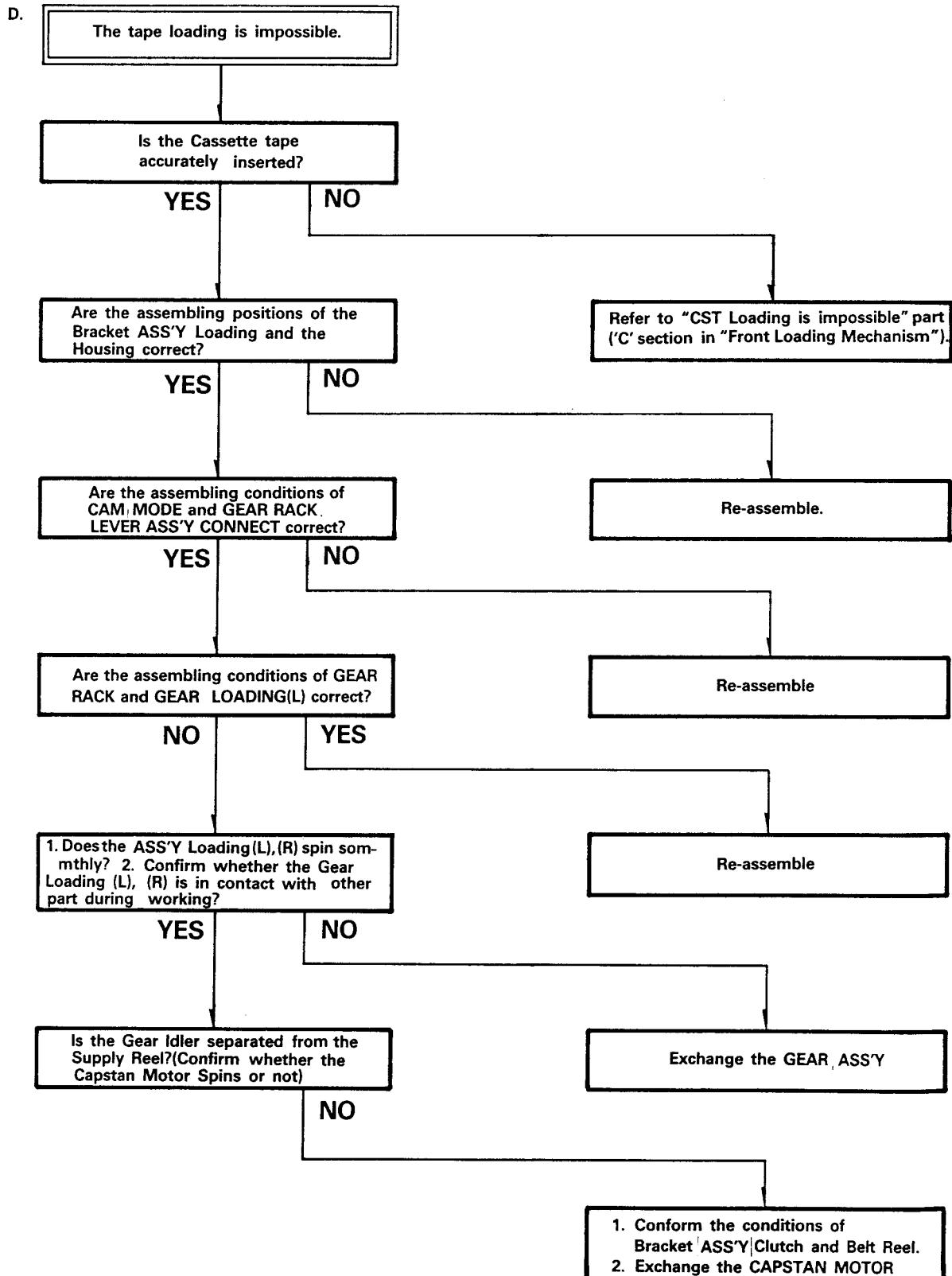
### 4.1 MECHANICAL PARTS

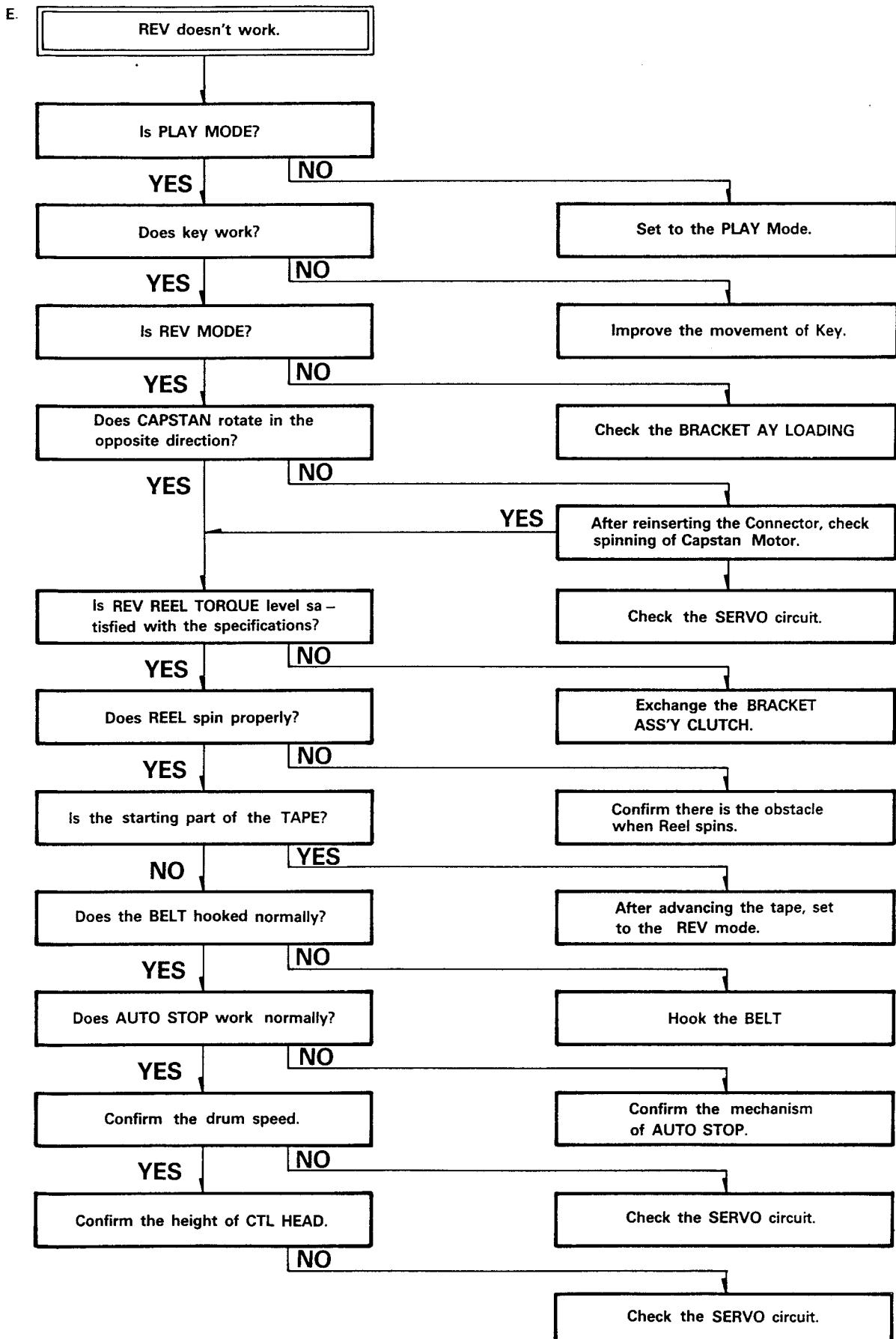
#### 4.1.1 Deck Part



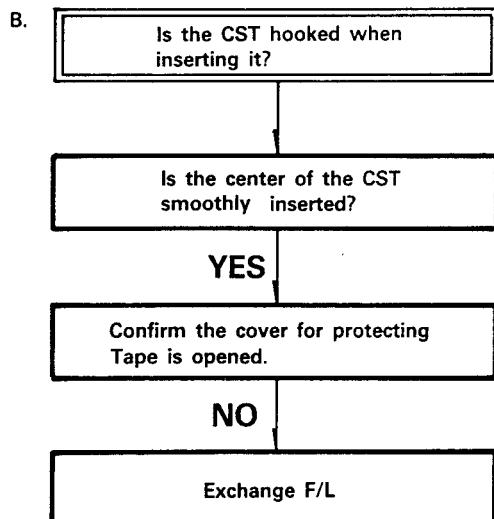
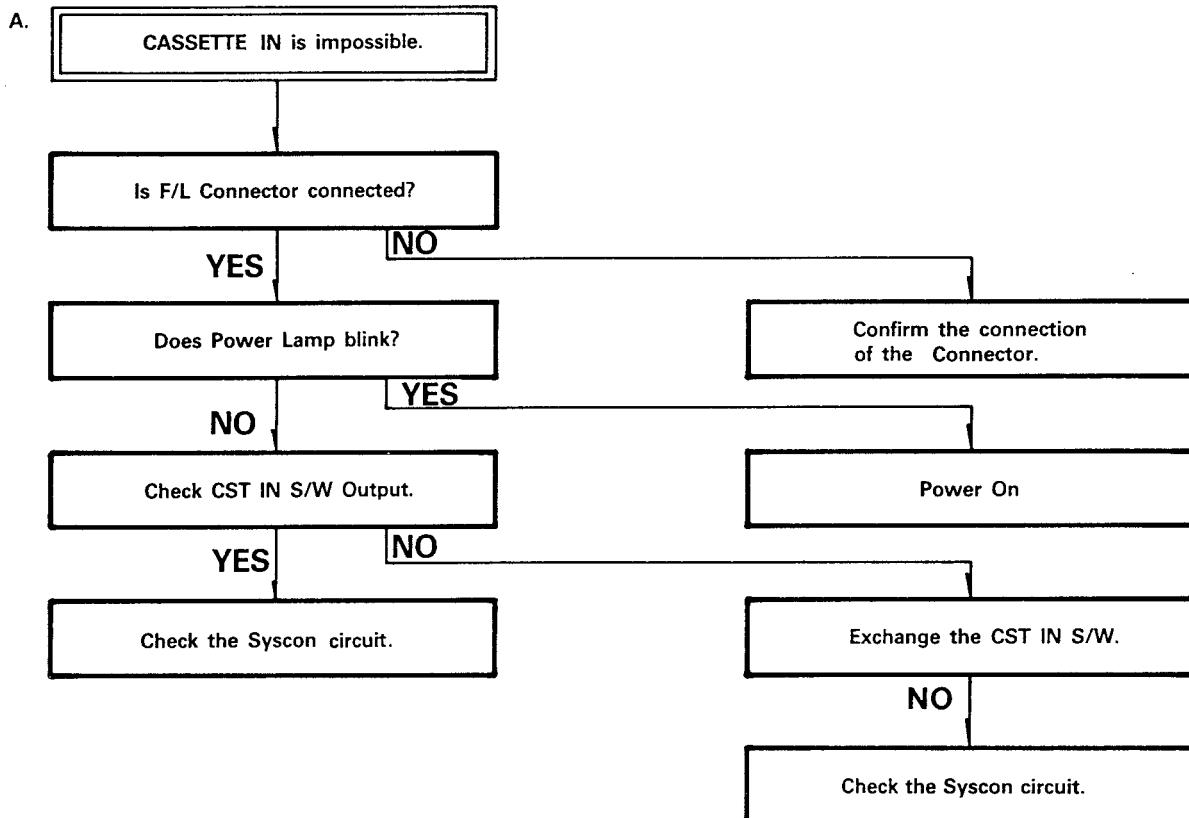


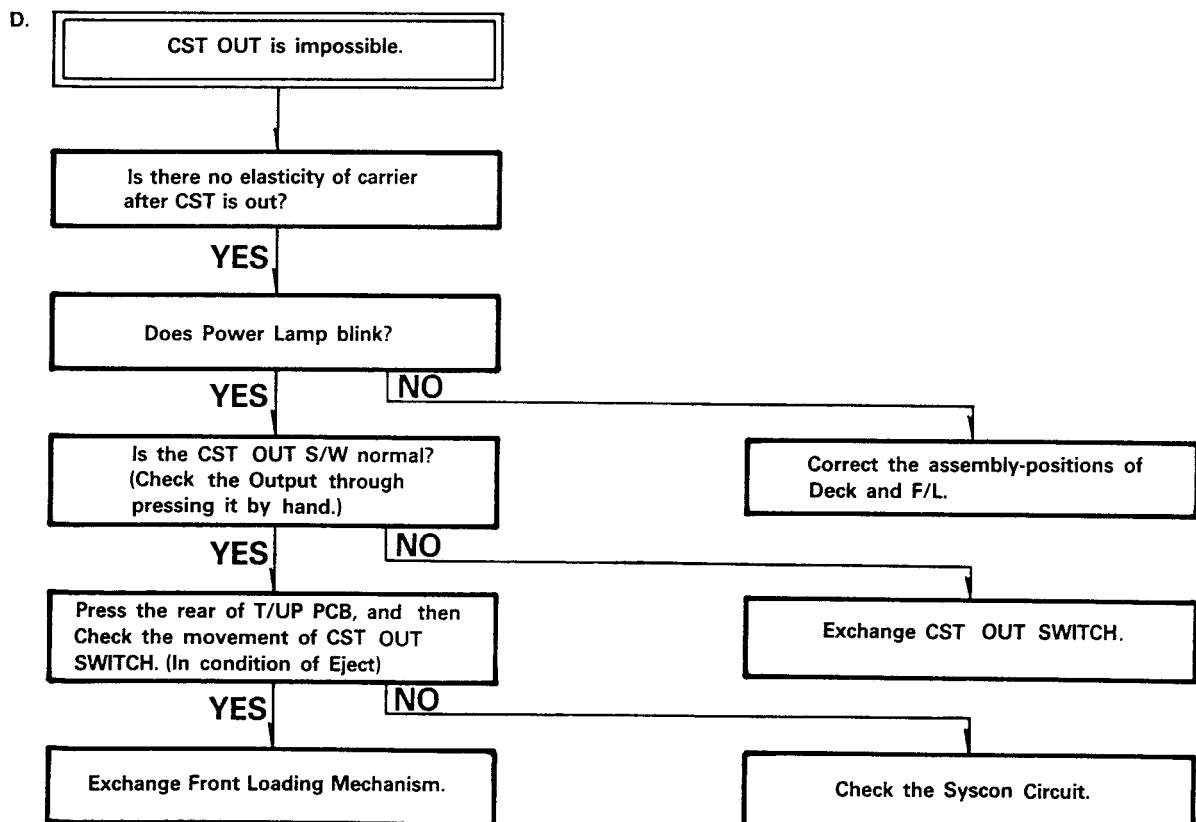
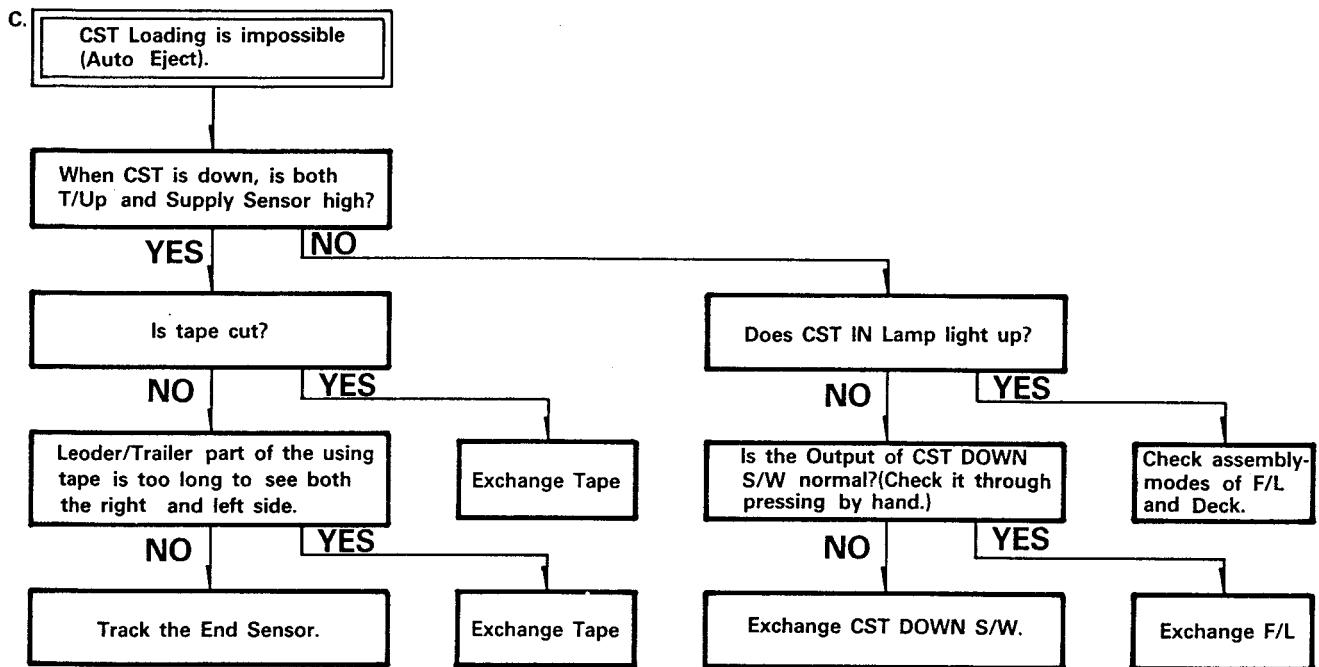






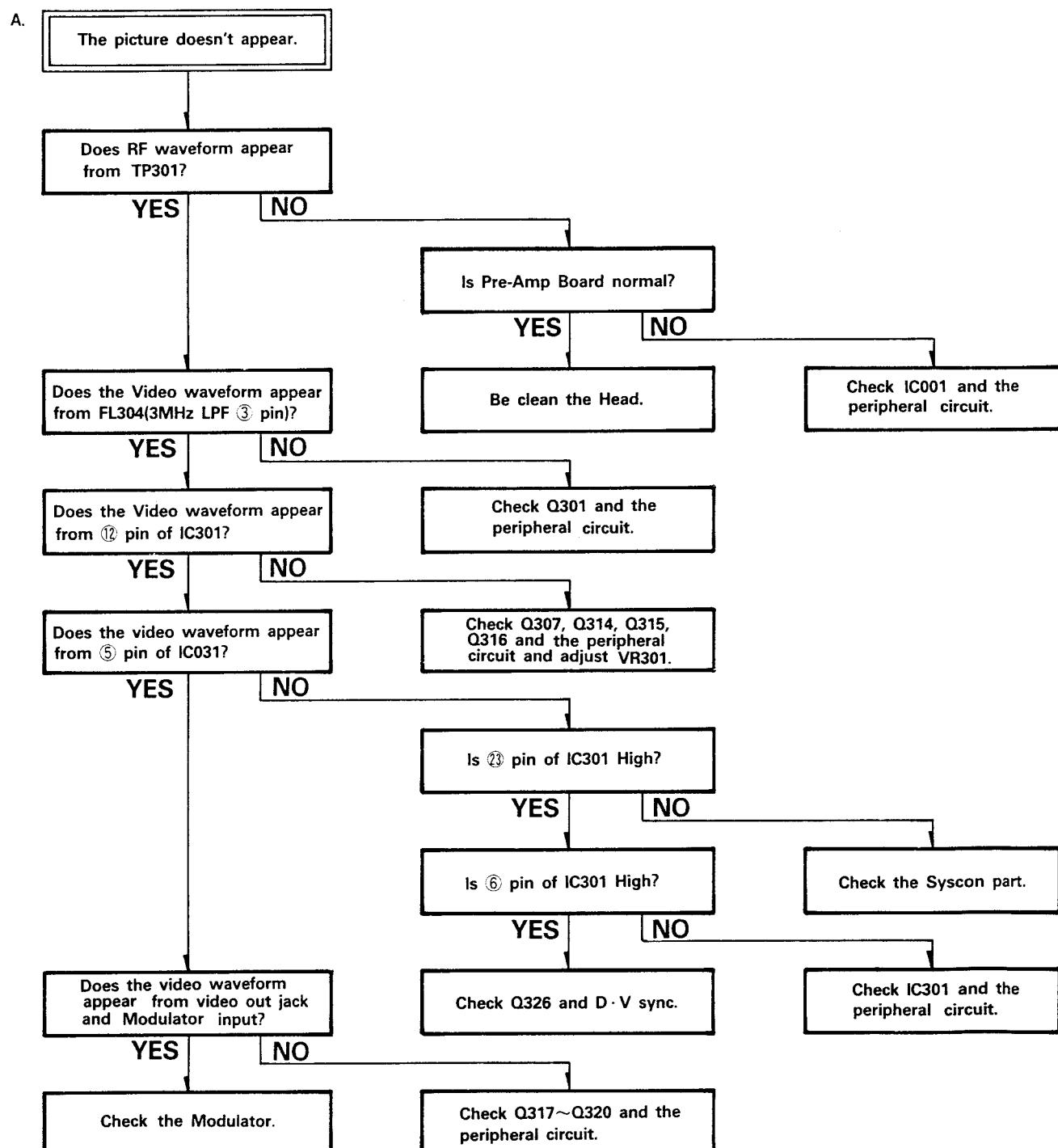
#### 4-1-2 Front Loading Mechanism Part



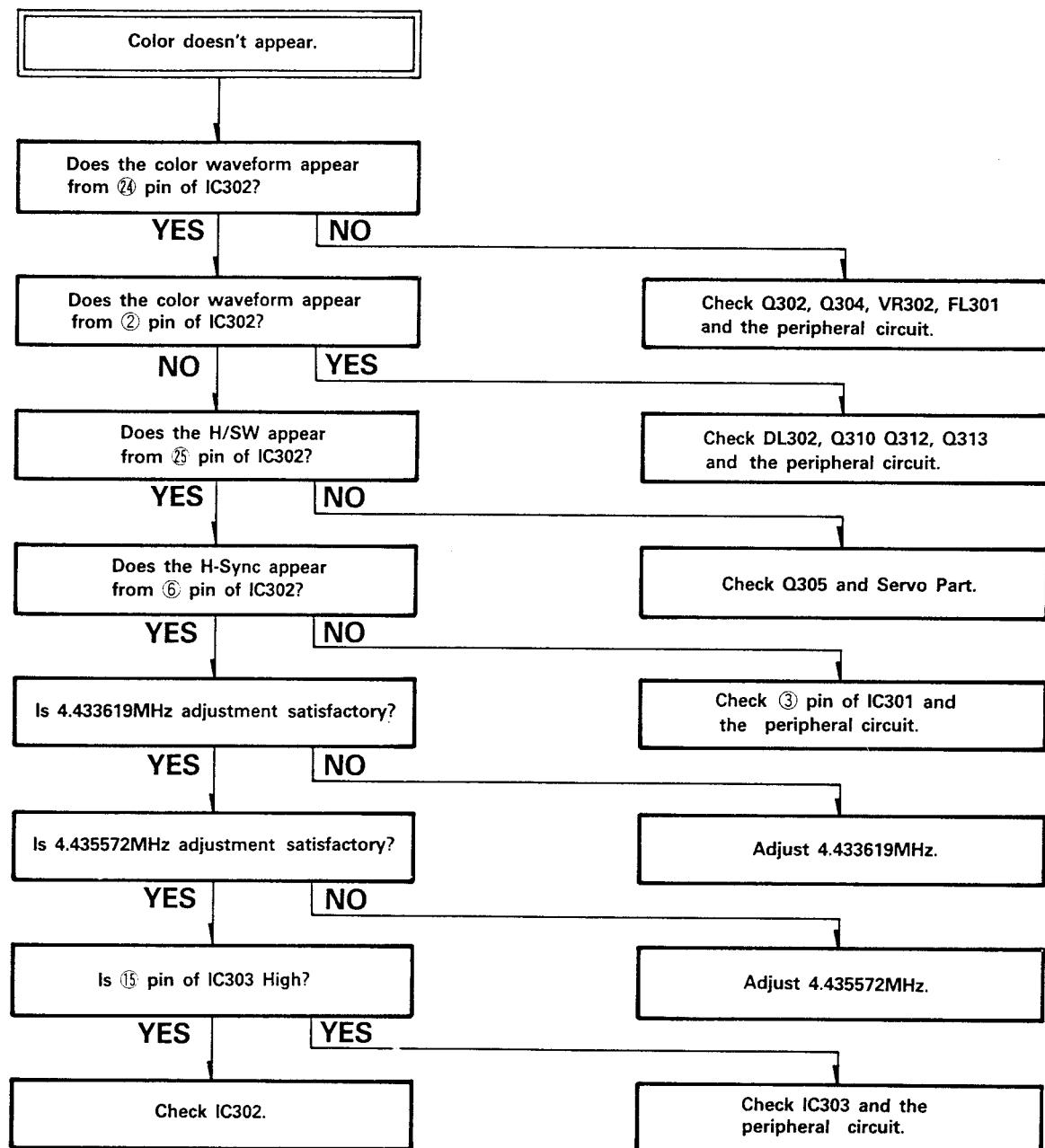


## 4.2 ELECTRICAL PARTS

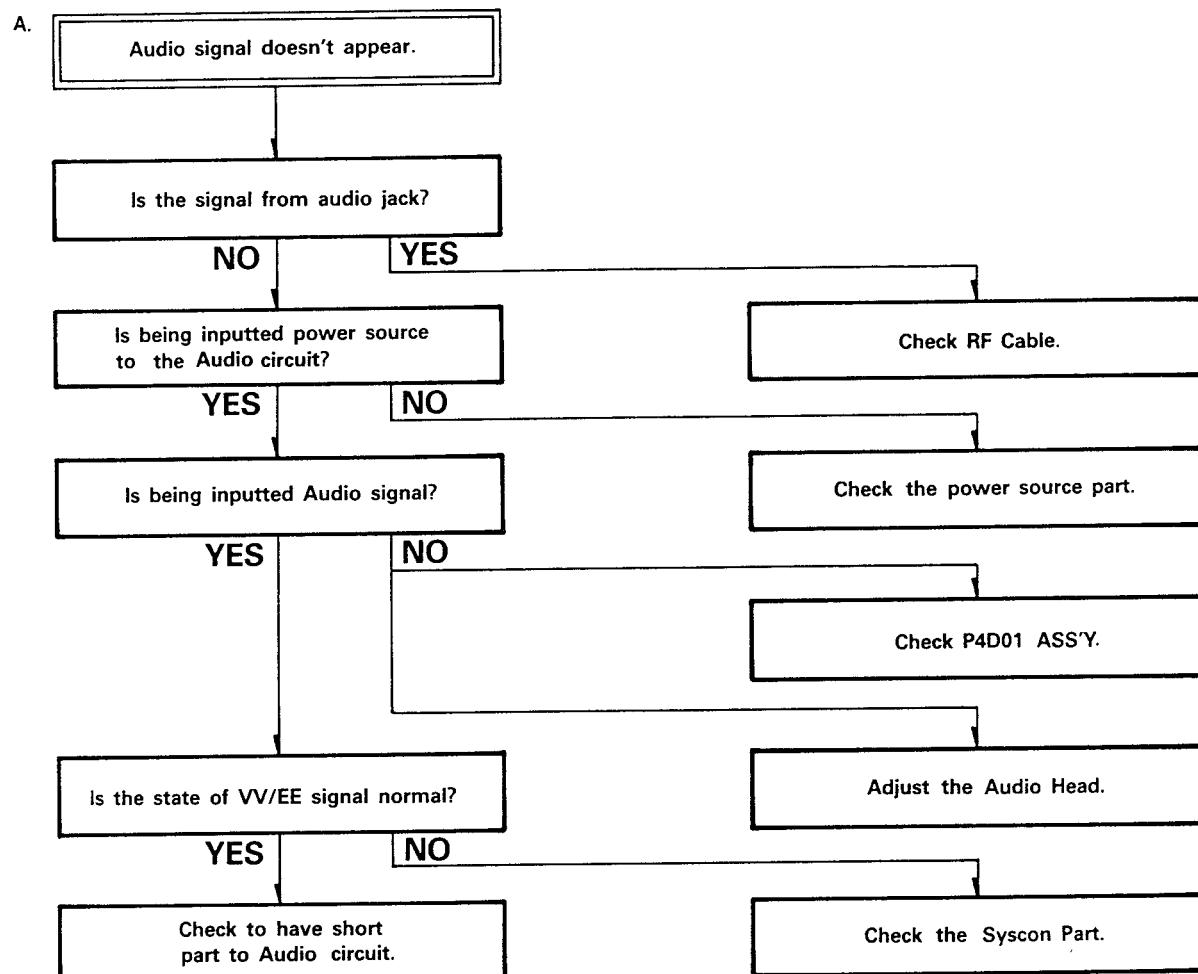
### 4-2-1 Y/C Circuit



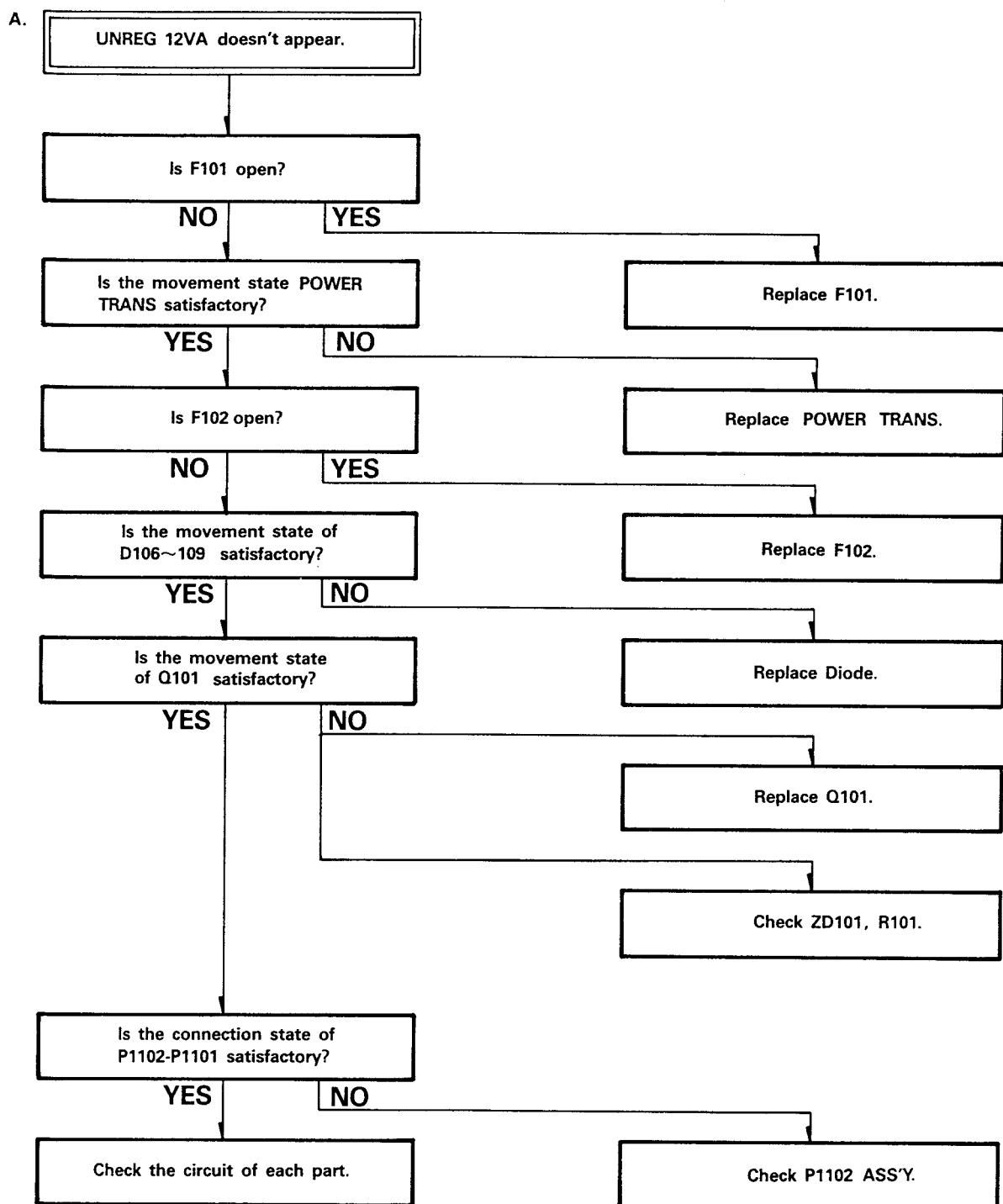
B.

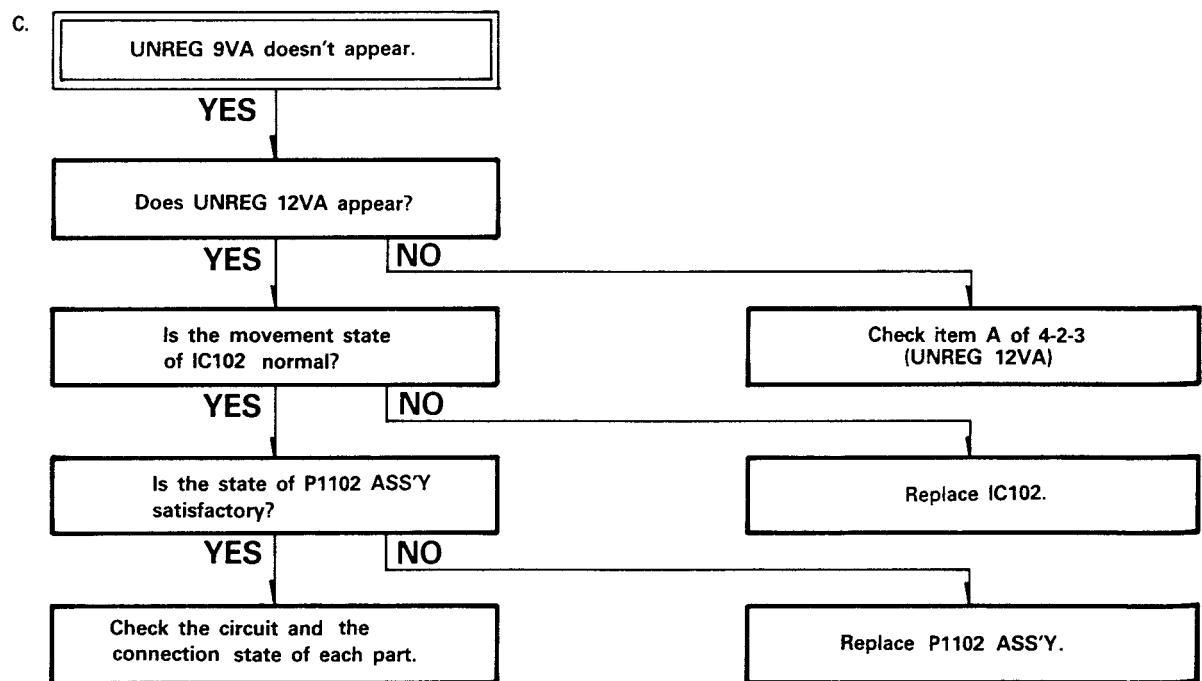
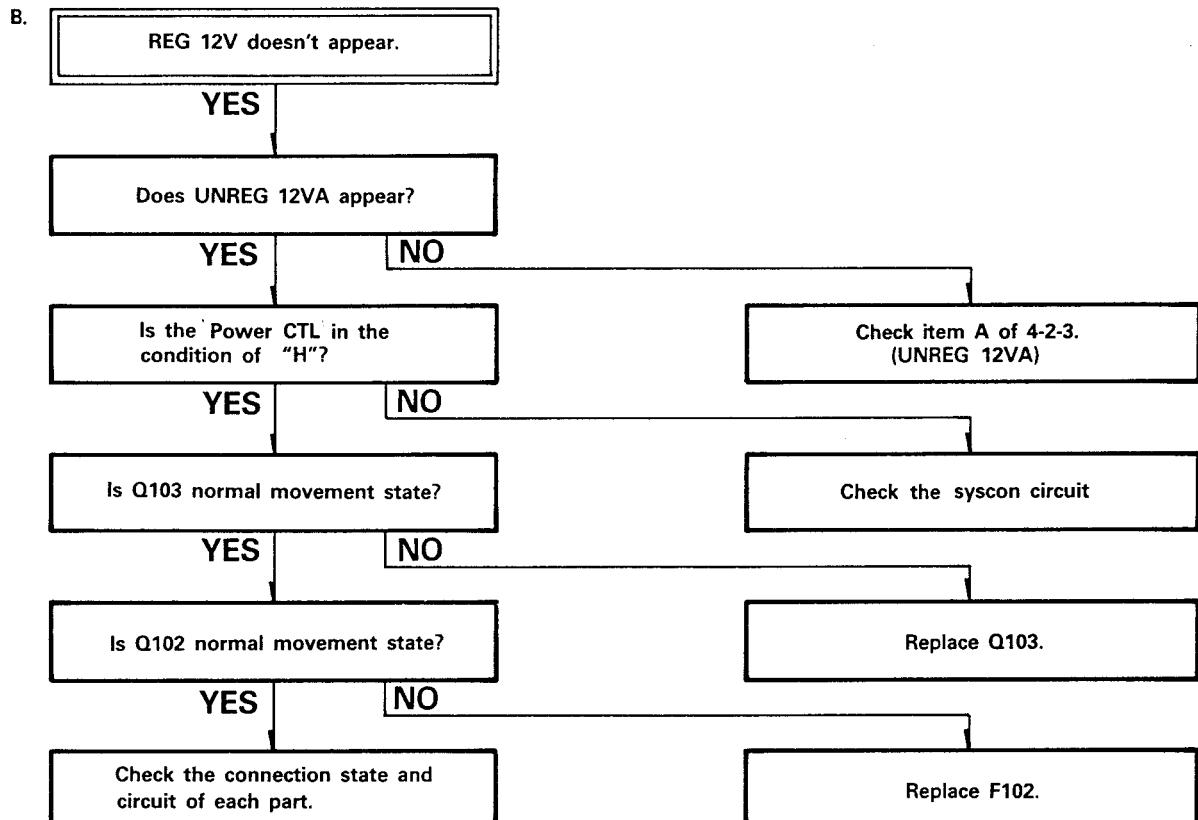


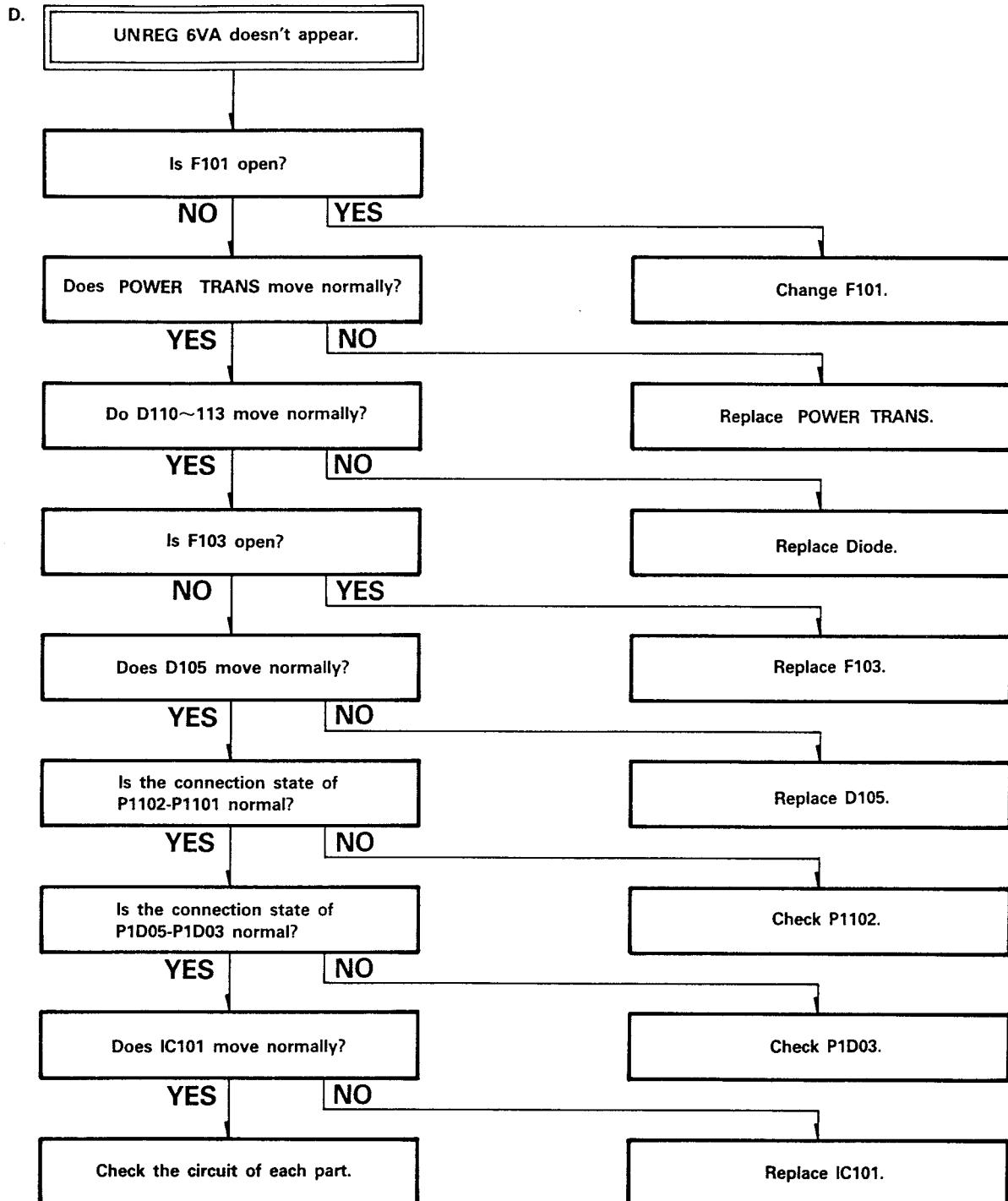
#### 4-2-2. Audio Circuit



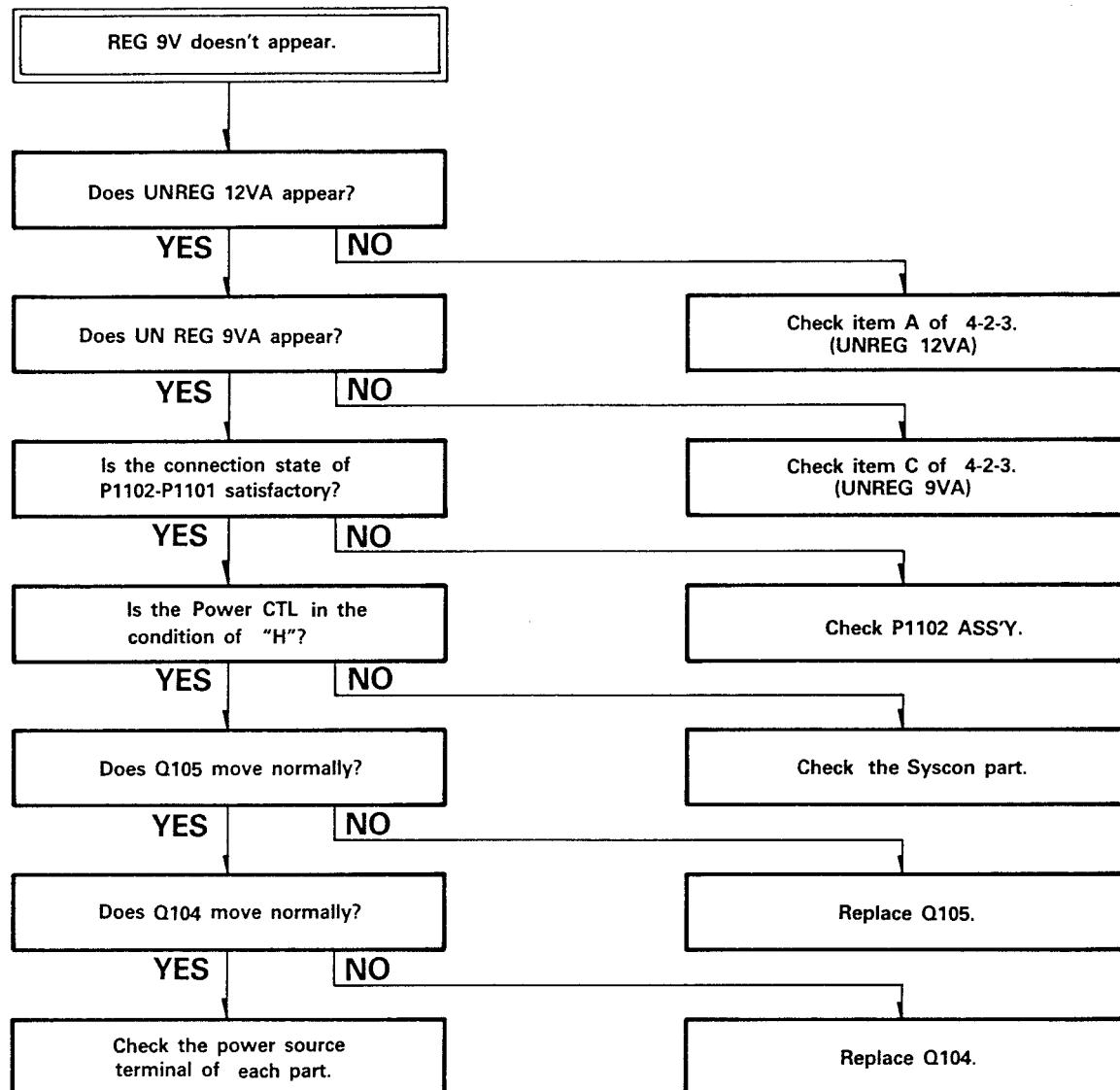
#### 4-2-3. Power Circuit



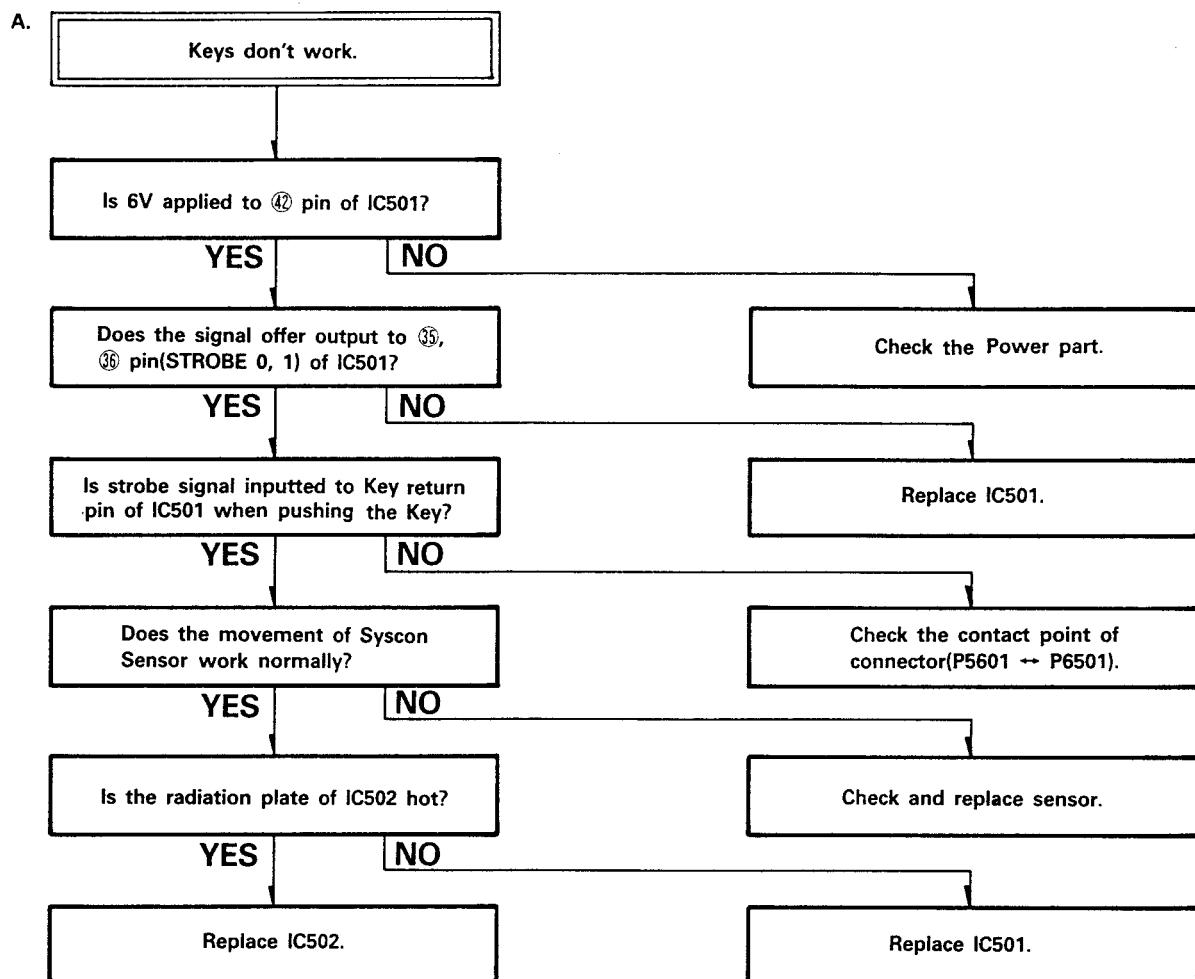


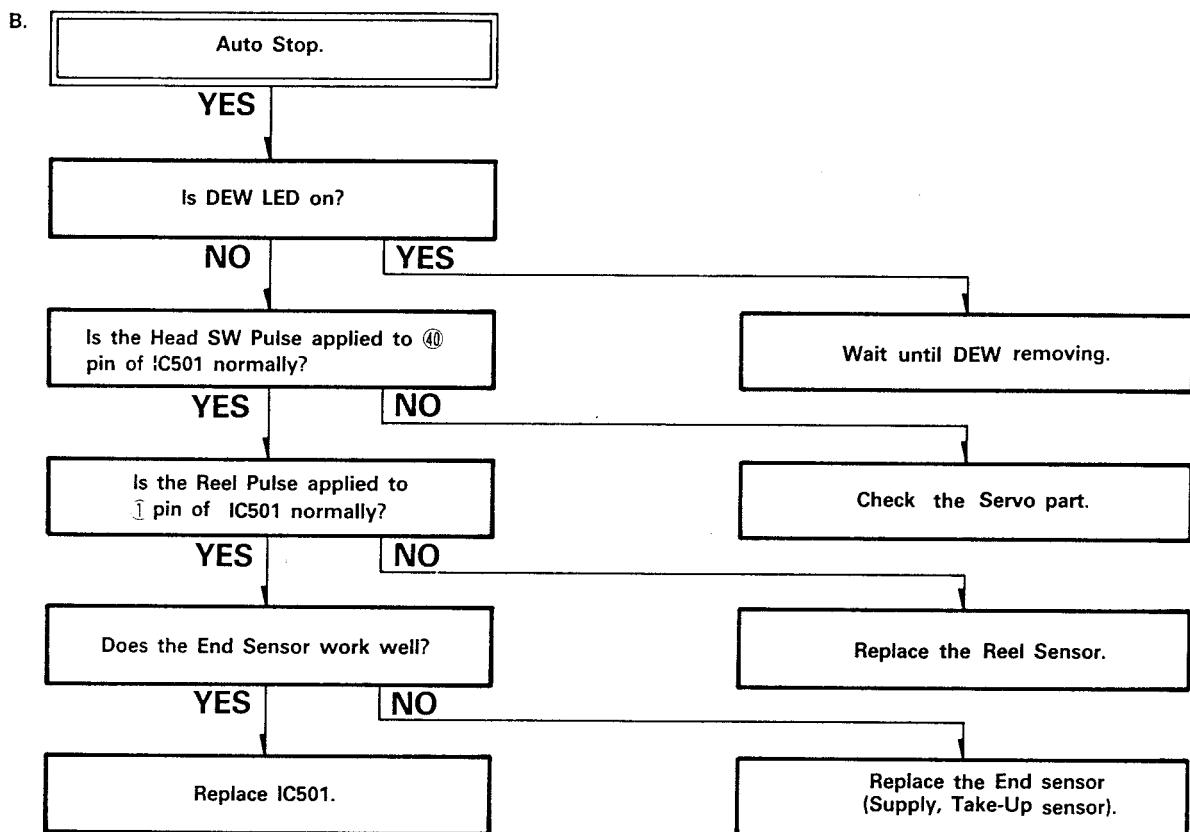


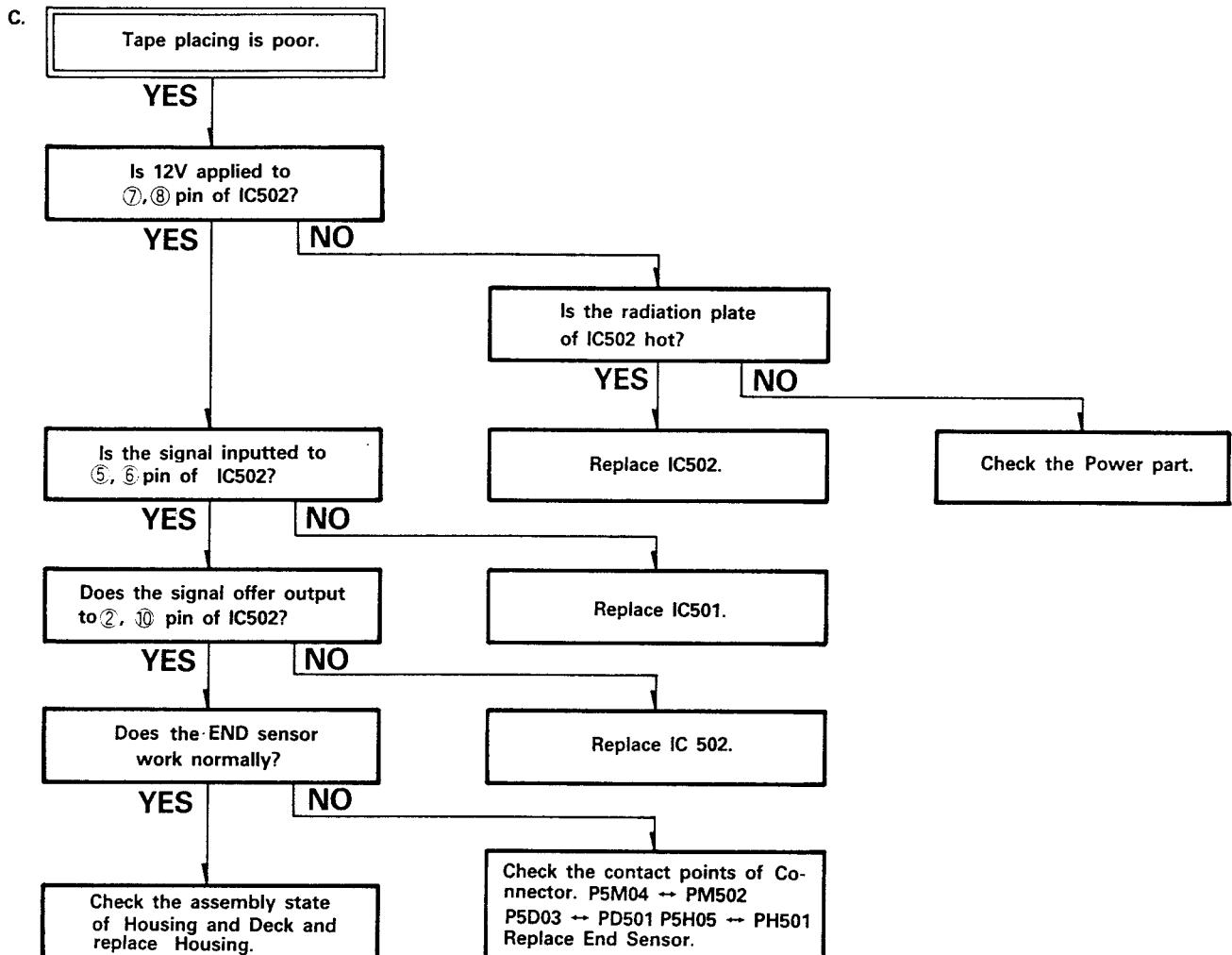
E.



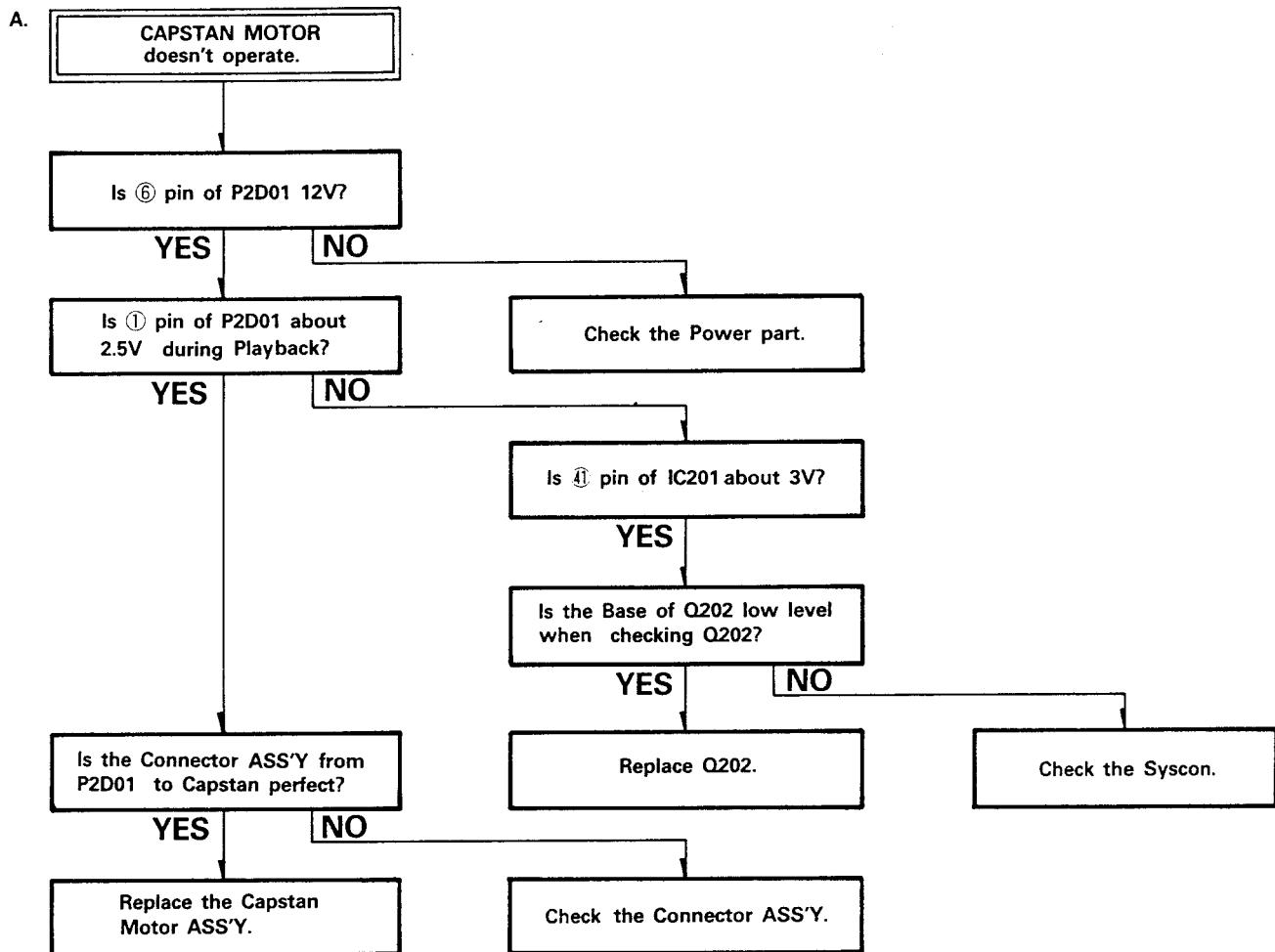
#### 4-2-4. Syscon Circuit

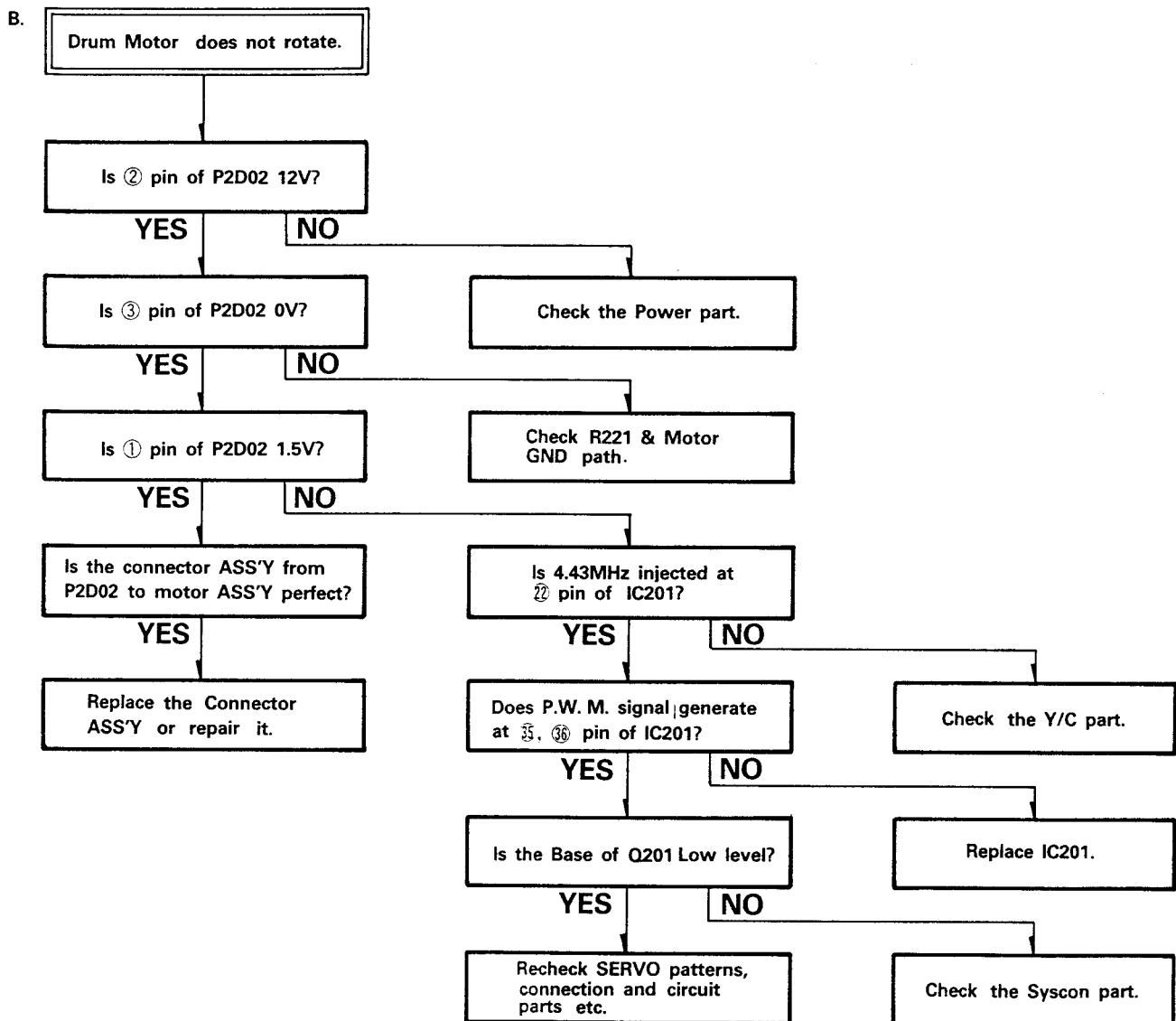


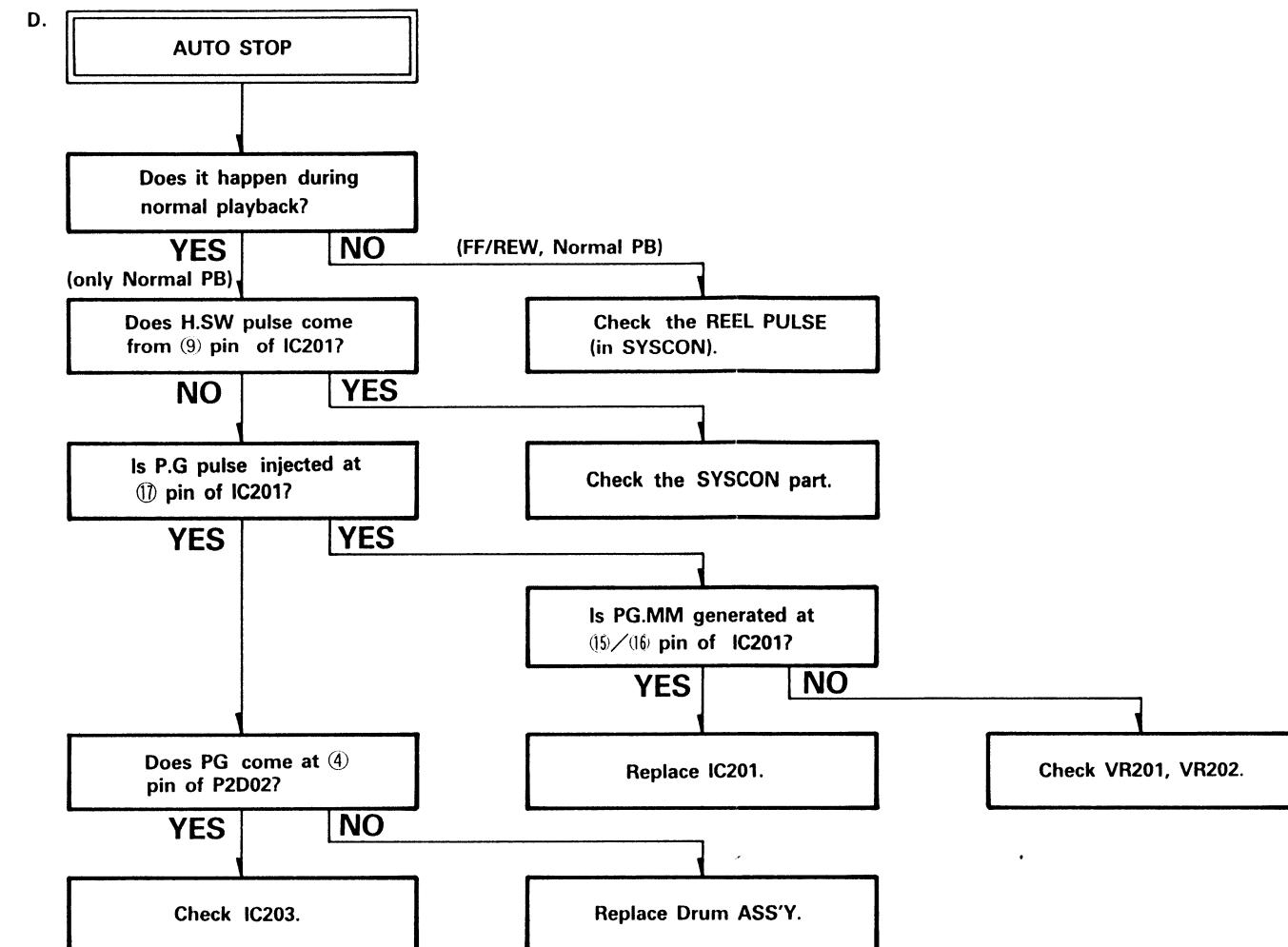
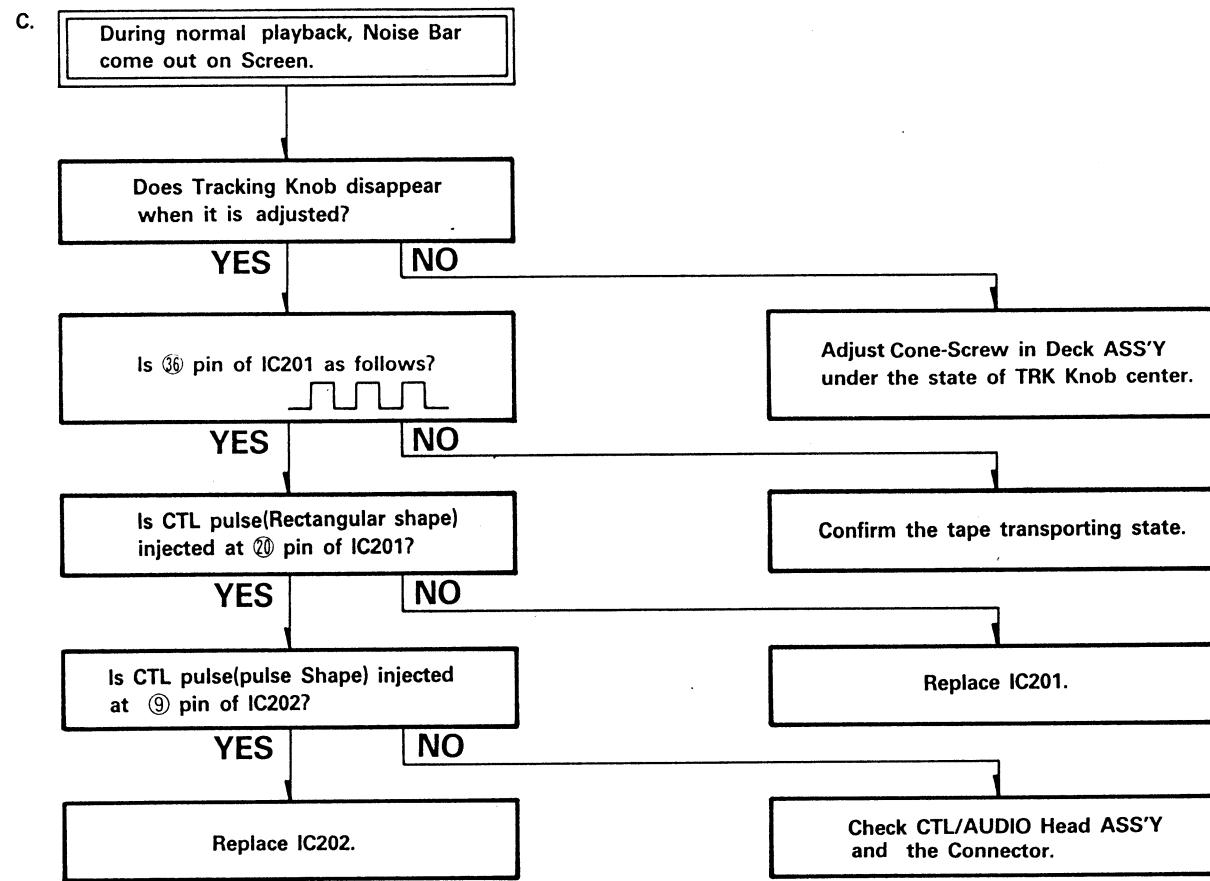




#### 4-2-5. Servo Circuit



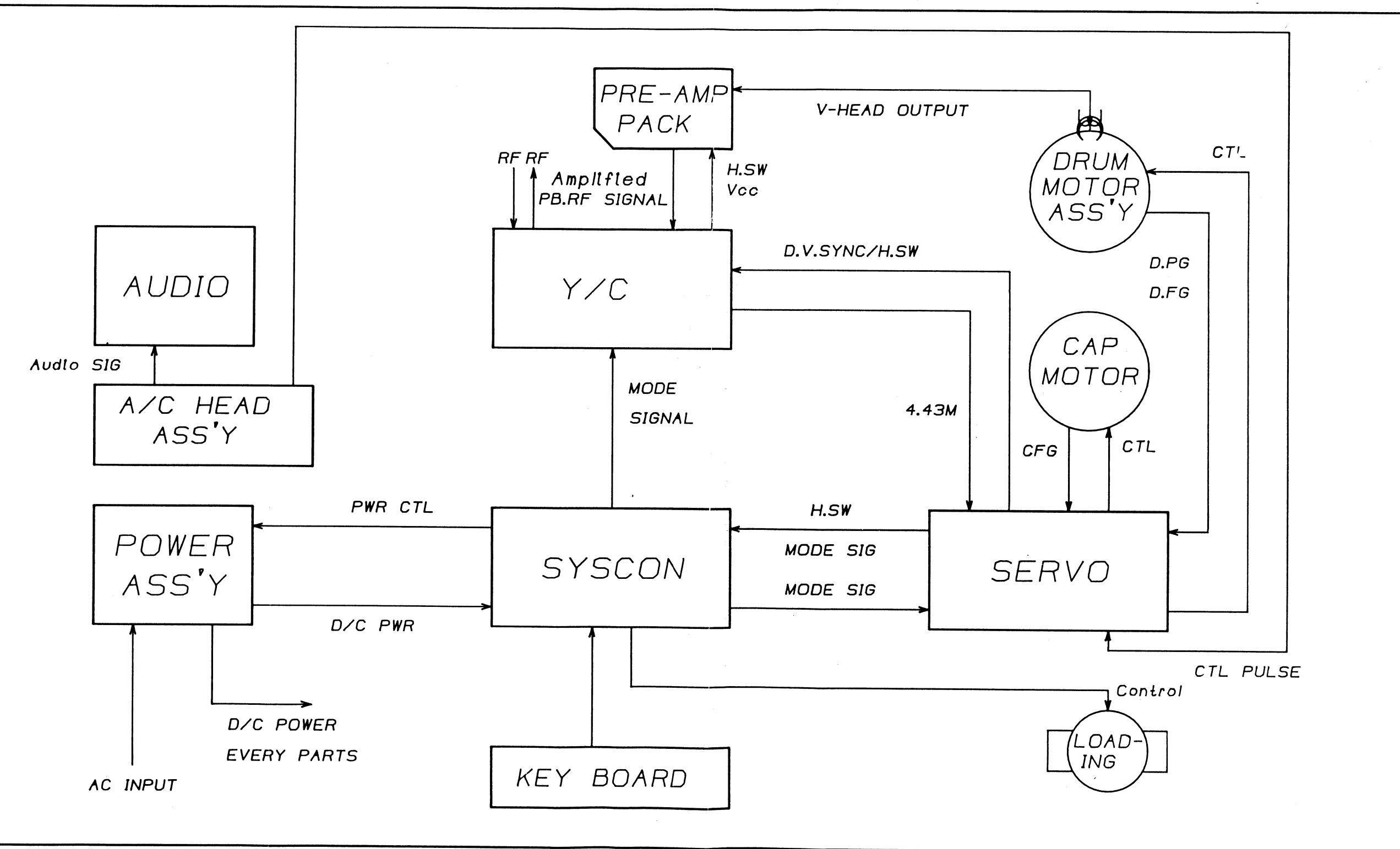




## 5. BLOCK DIAGRAM

### 5-1 OVERALL BLOCK DIAGRAM

5



A

B

C

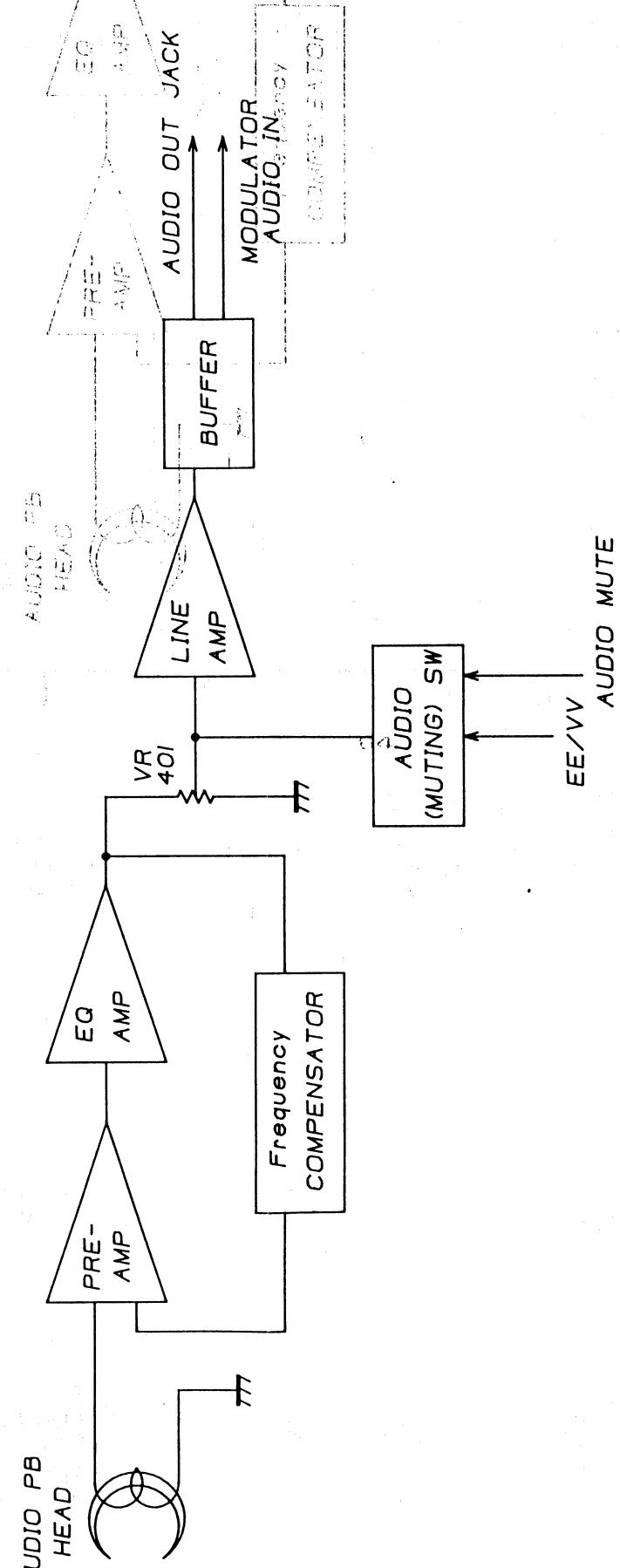
D

E

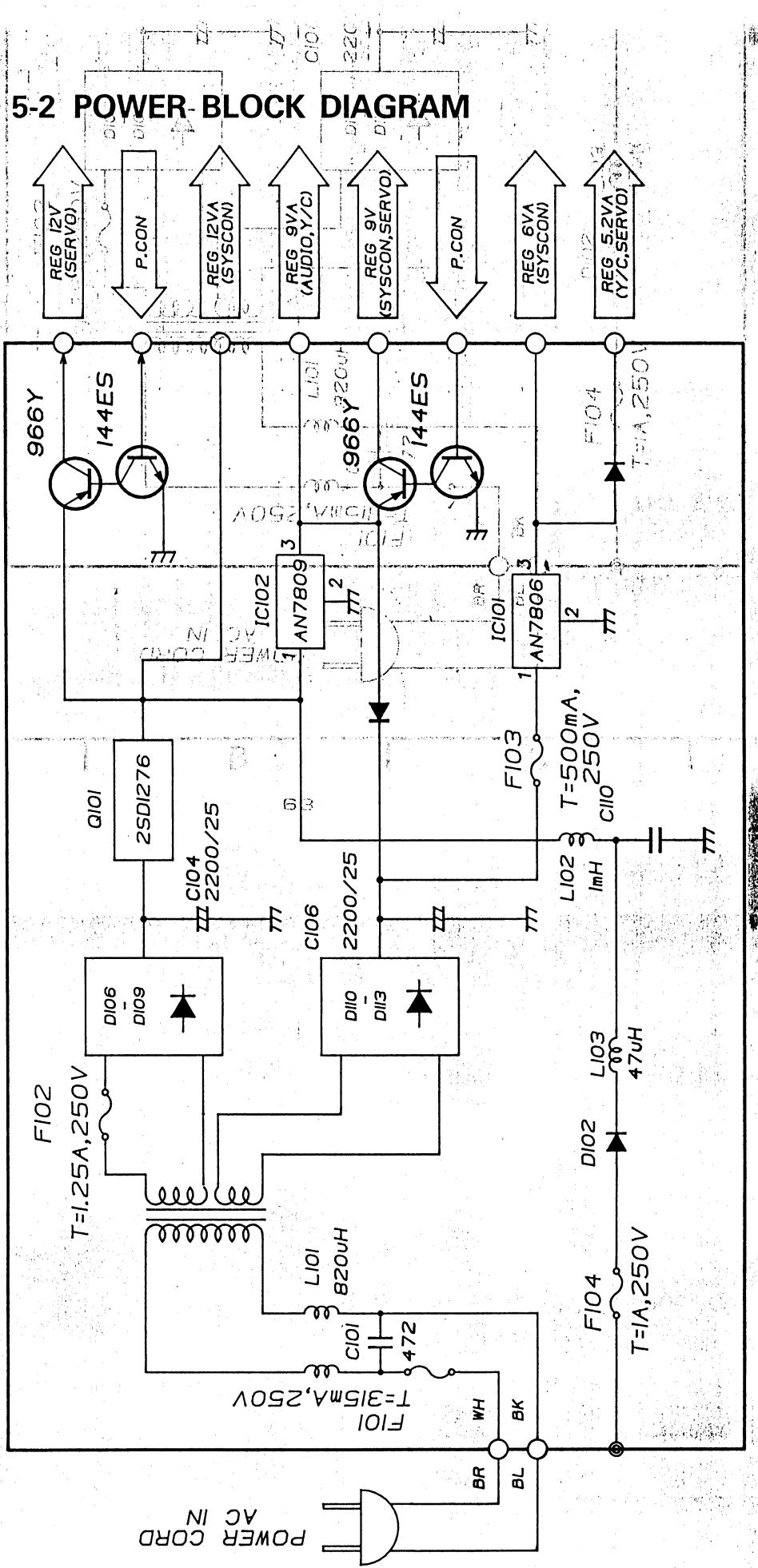
F

G

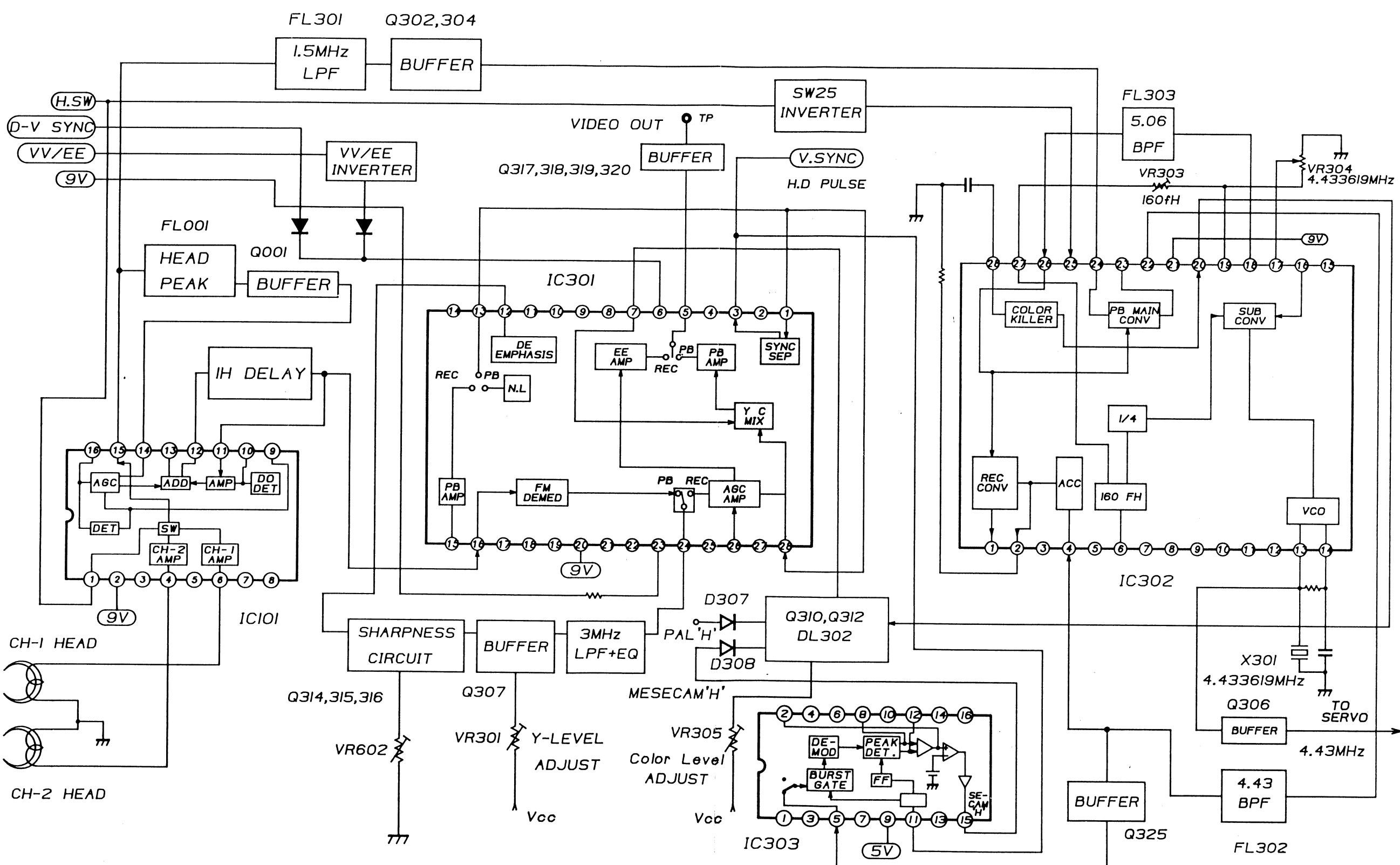
### 5-3 AUDIO BLOCK DIAGRAM



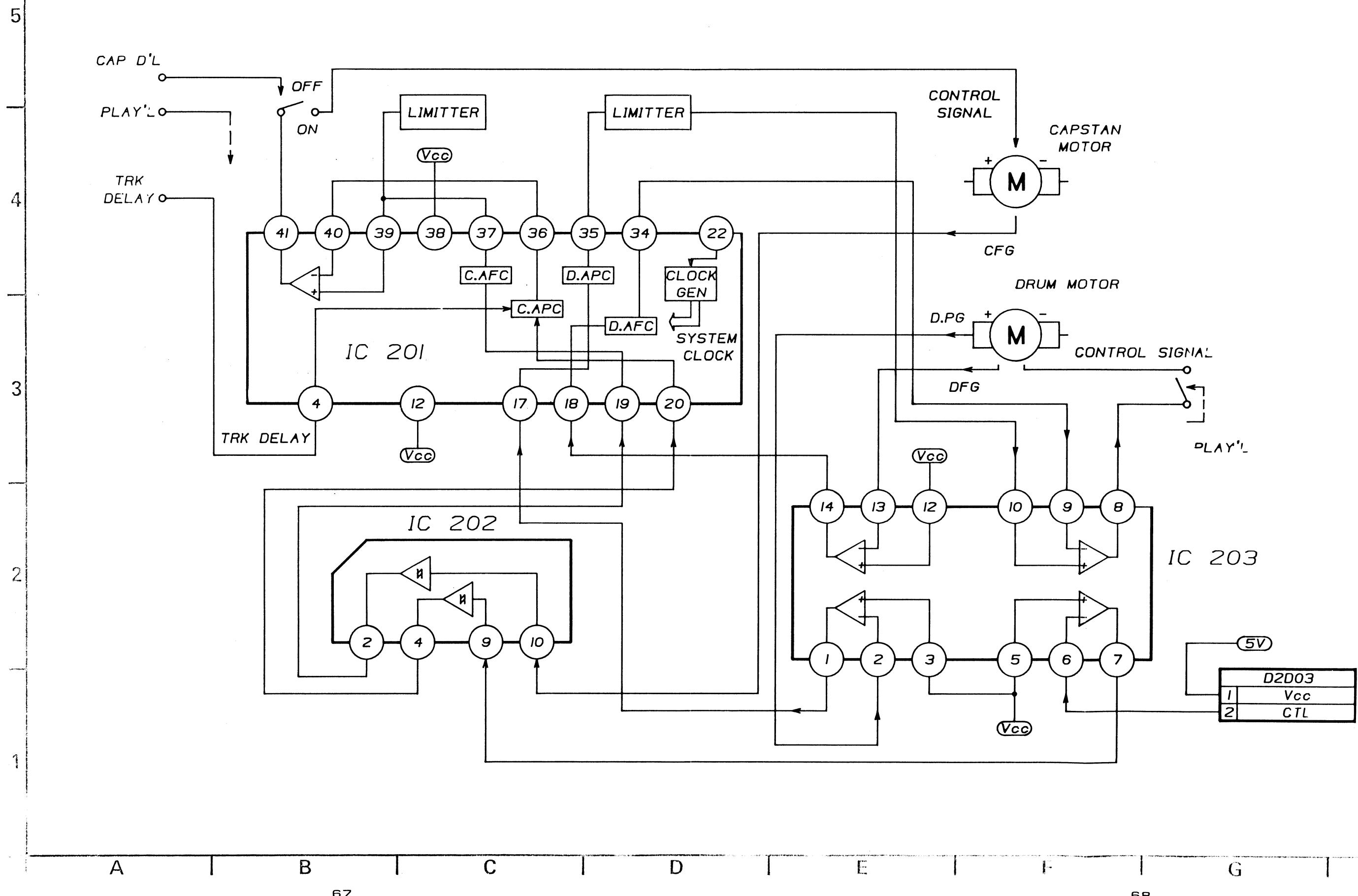
### 5-2 POWER BLOCK DIAGRAM



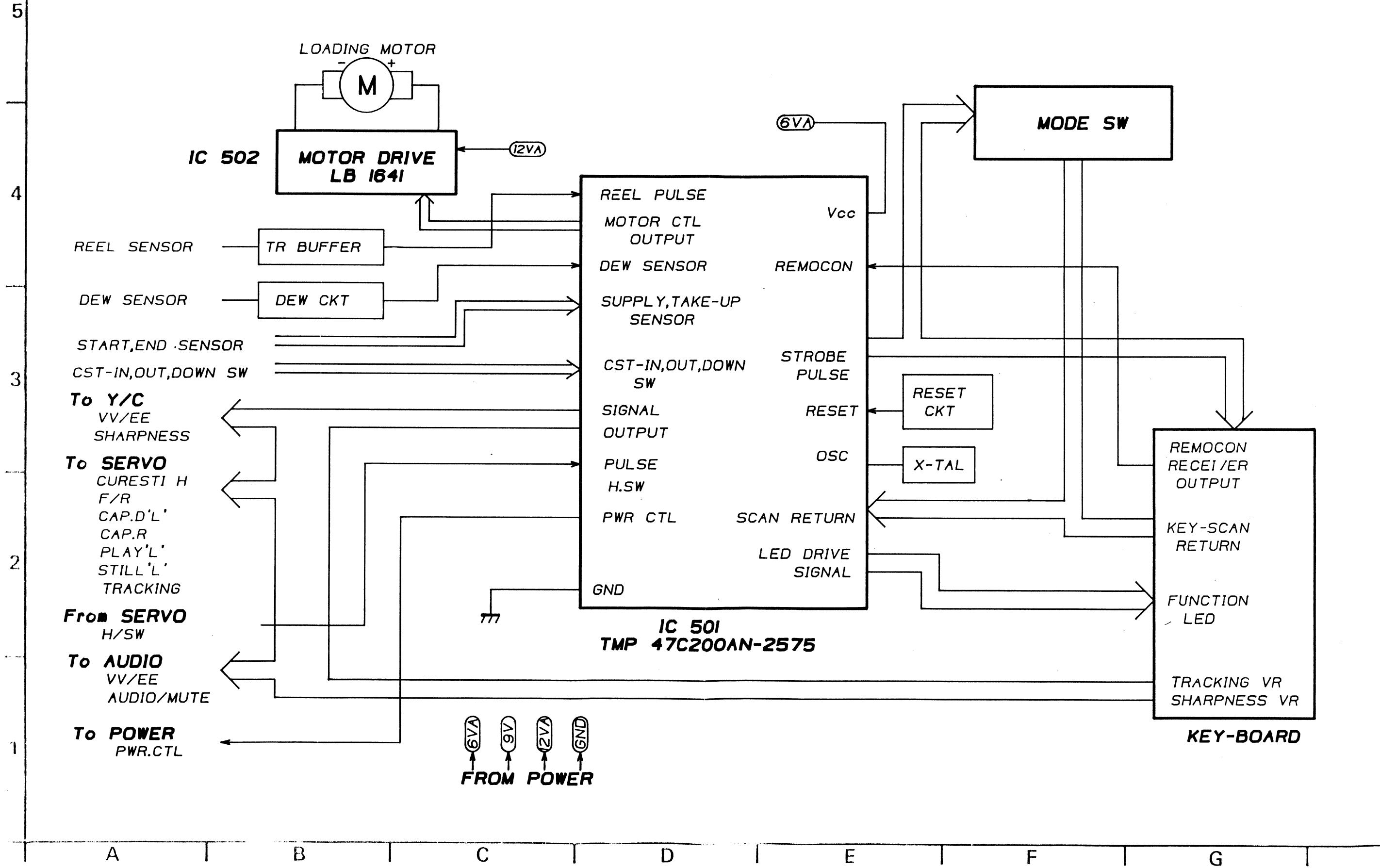
## 5-4 Y/C BLOCK DIAGRAM



## 5-5 SERVO BLOCK DIAGRAM

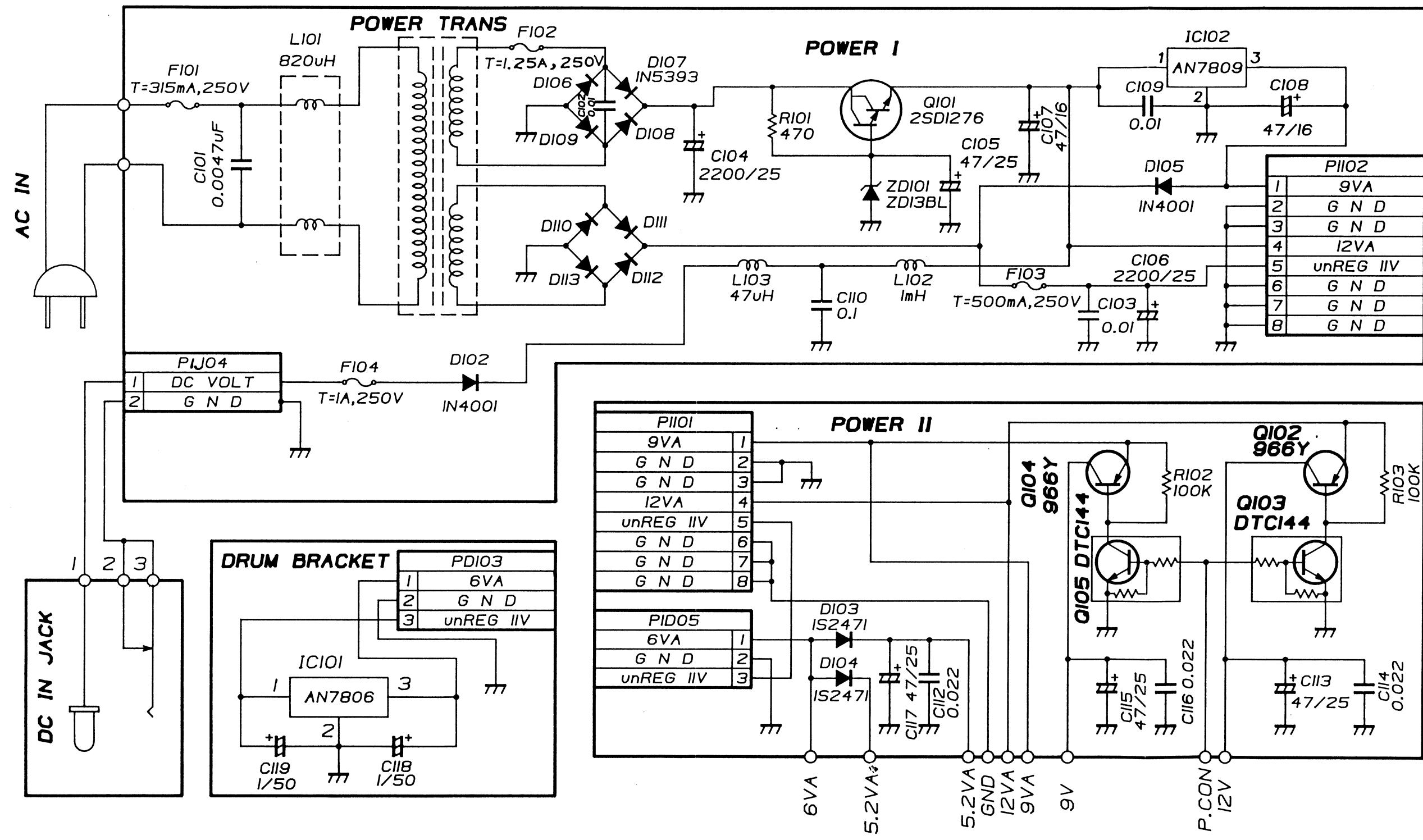


## 5-6 SYSTEM CONTROL BLOCK DIAGRAM



## **6. CIRCUIT DIAGRAM**

### **6-1 POWER CIRCUIT DIAGRAM**



## 6-2 AUDIO CIRCUIT DIAGRAM

5

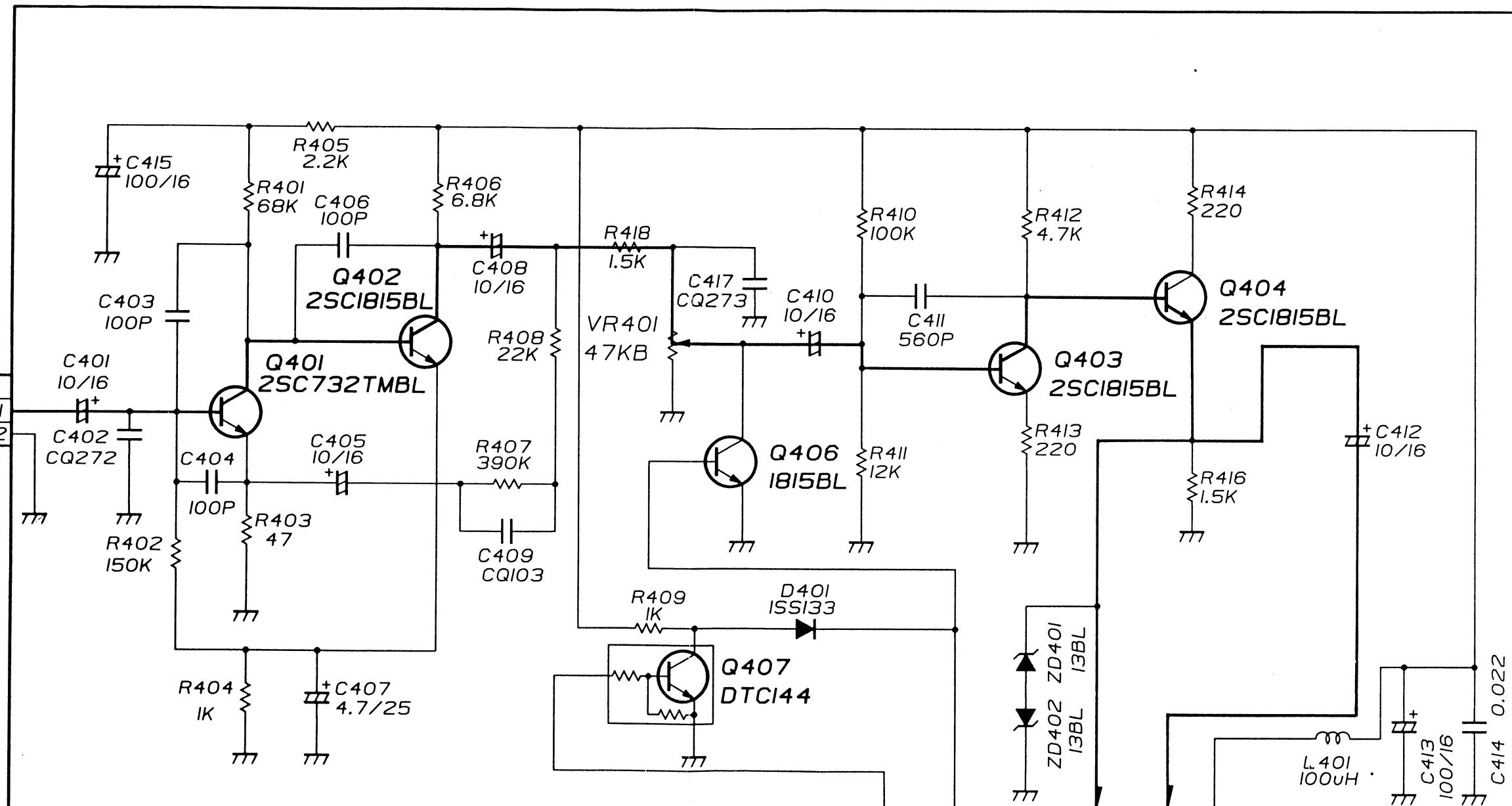
4

3

2

1

TO PB HEAD	
PLAY	1
G N D	2



— PLAY BACK SIGNAL

A

B

C

D

E

F

G

**MEMO**

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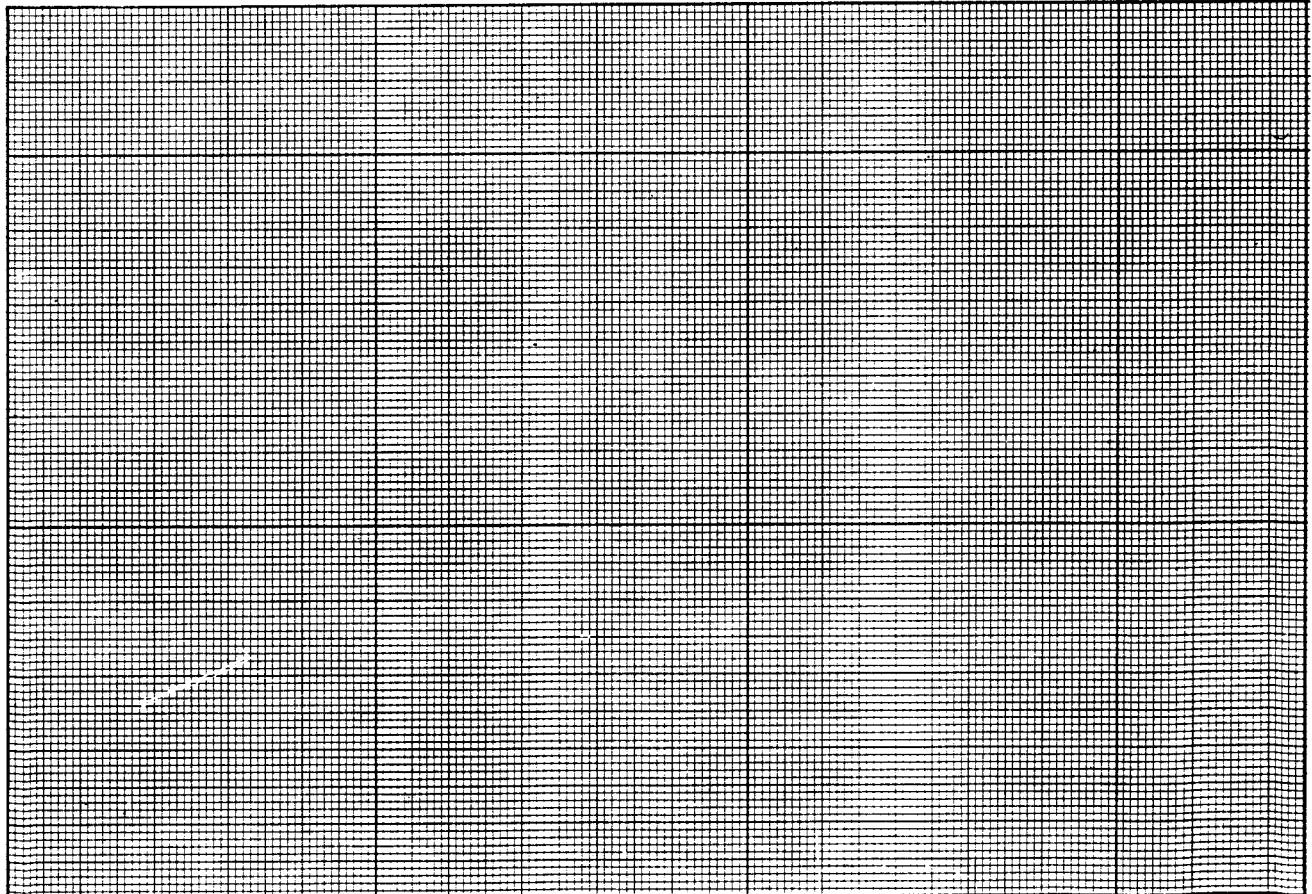
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IC301

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
VOL-	1.9	8	0	6.2	6.3	0	1.1	0	4.2	4.4	4.2	3.7	4.9	7.5
TAGE	3.2	3.4	0	3.7	3.7	9	5	5	1.8	7.8	0	5.5	0	5.9
PIN	15	16	17	18	19	20	21	22	23	24	25	26	27	28

IC302

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
VOL-	0	6.4	1	5.2	1.5	0	0	0.7	5.4	5.4	5.4	6.8	2.8	2.8
TAGE	3	3.1	5.4	6.5	7.2	7	9	4.3	5	3.4	5.3	6.1	4.7	4.4
PIN	15	16	17	18	19	20	21	22	23	24	25	26	27	28

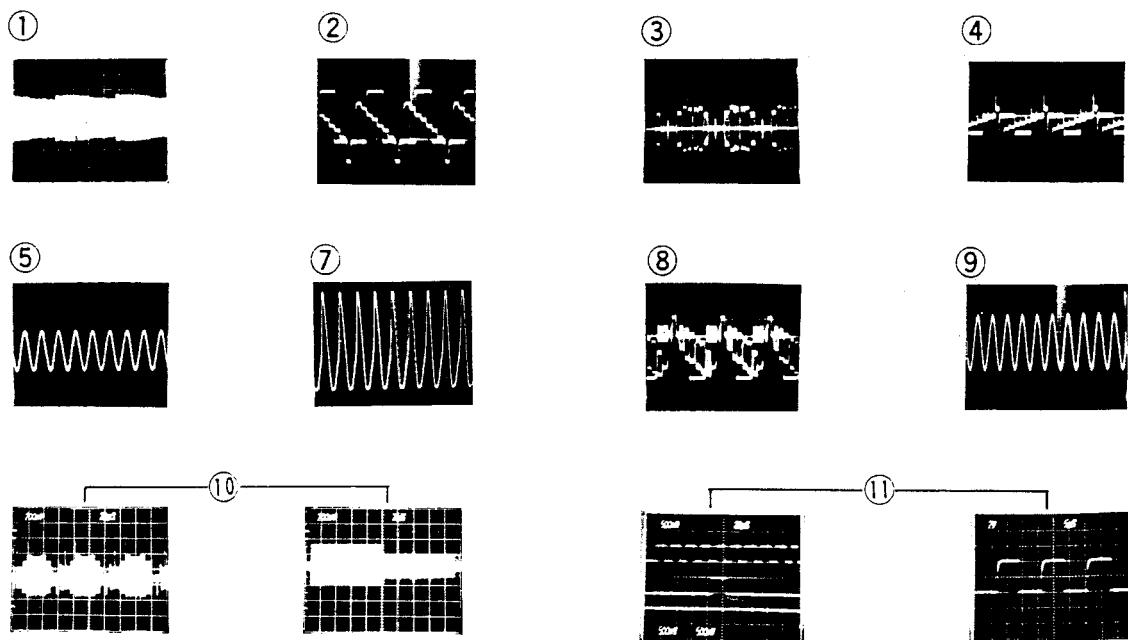
IC303

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PAL	3.9	0	0	0.3	3.9	0	0	2.4	4.8	0	2.7	2.4	4.7	0	0	—
ME-SECAM	3.9	3.6	0	0.3	3.9	0	—	2.4	4.8	0	2.7	2.4	—	—	4	0

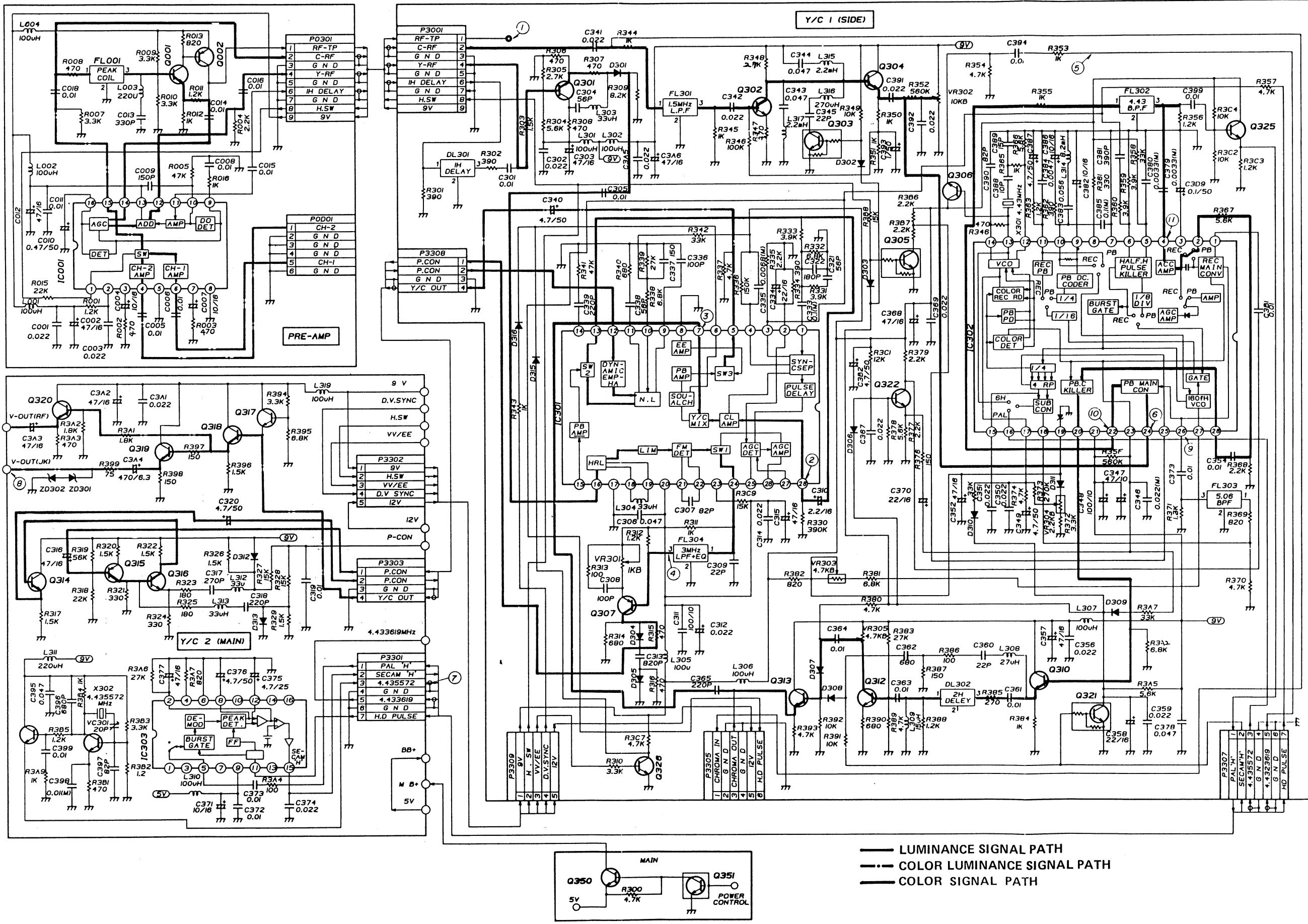
IC001

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
VOL-	0.5	6.7	3.3	0.4	0	0.5	3.3	0	3.7	6.1	2.7	5.5	9	4.2	5.6	0.5

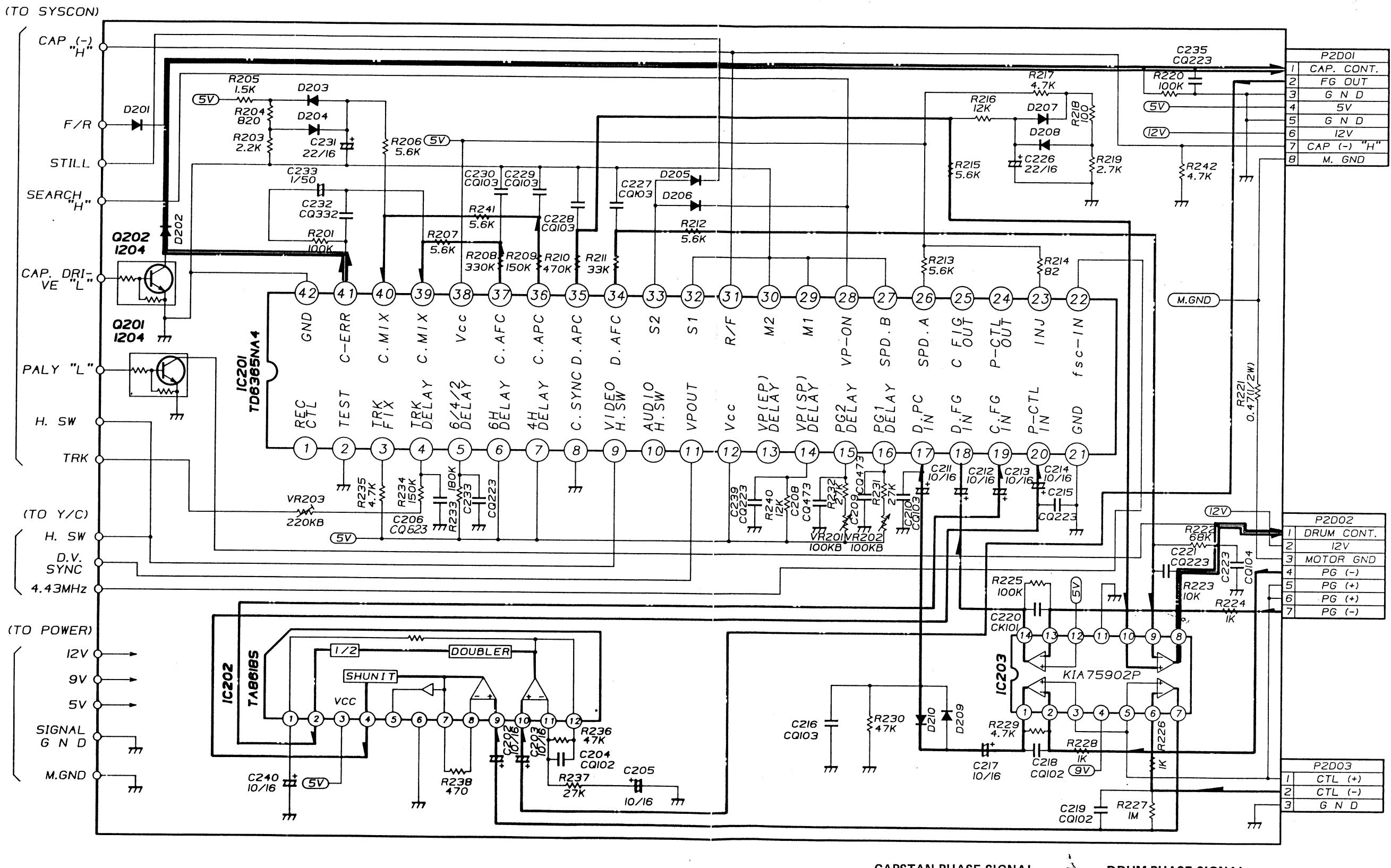
	E	C	B
Q301	2.2	6.9	2.9
Q302	0.7	4	1.3
Q303	0	0	7.3
Q304	3.4	9	4
Q305	0	4.5	2
Q306	2.2	9	2.8
Q307	8.4	2	7.6
Q308	3.1	9	3.8
Q309	2.5	3.7	2.4
Q310	6.4	9	7
Q312	0.6	4	1.3
Q313	3.6	9	4.3
Q314	6.0	9	6.7
Q315	3.6	1.2	3
Q316	0.5	6.6	1.2
Q317	6.8	9	6.2
Q318	6.1	9	6.8
Q319	5.2	9	6
Q320	2.4	9	3
Q321	0	6.8	0
Q322	2.2	6.9	2.9
Q325	4	9	4.6
Q326	0	0	0.7
Q350	5	5	4.3
Q351	0	4.2	3.5



### 6-3 Y/C CIRCUIT DIAGRAM



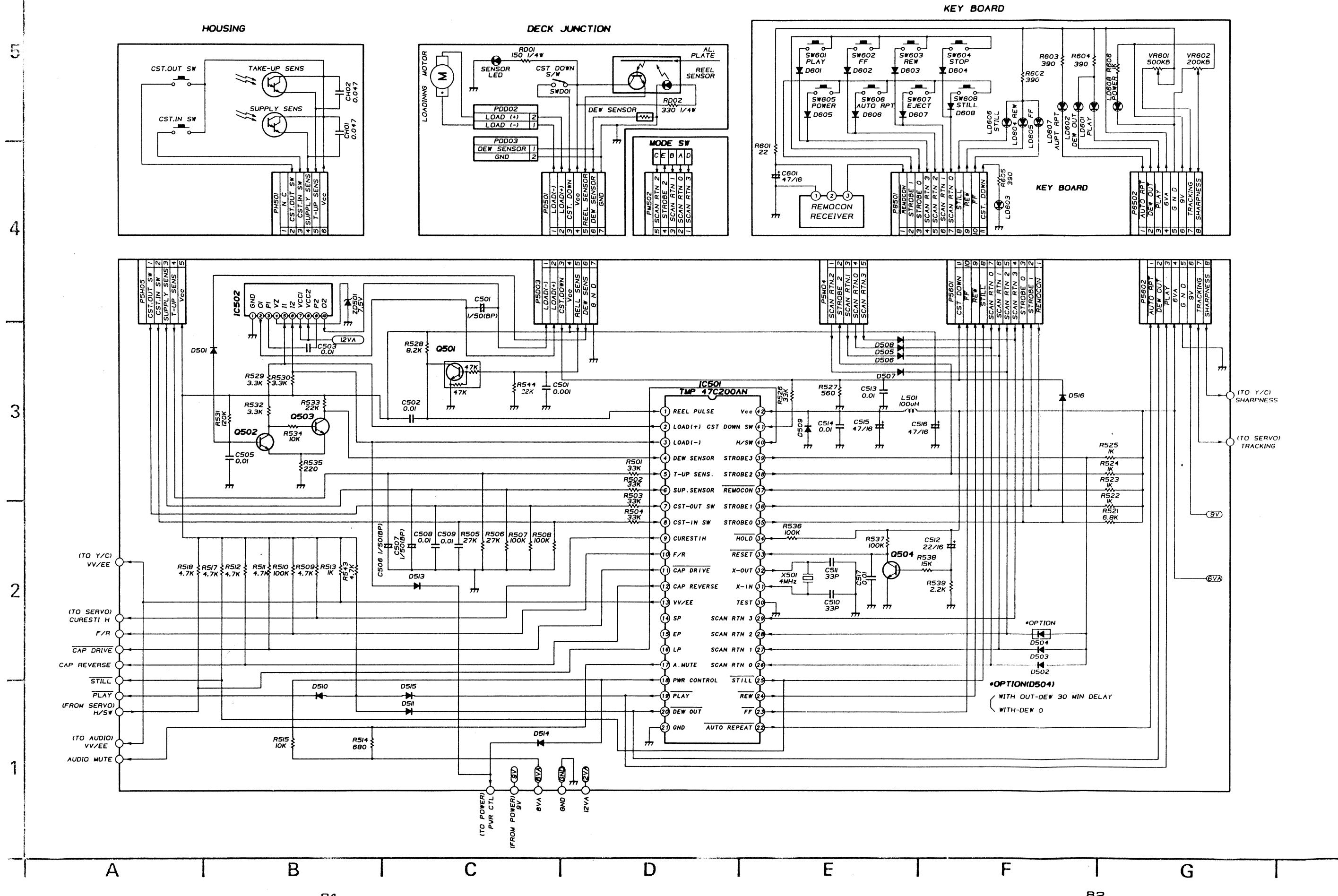
## 6-4 SERVO CIRCUIT DIAGRAM



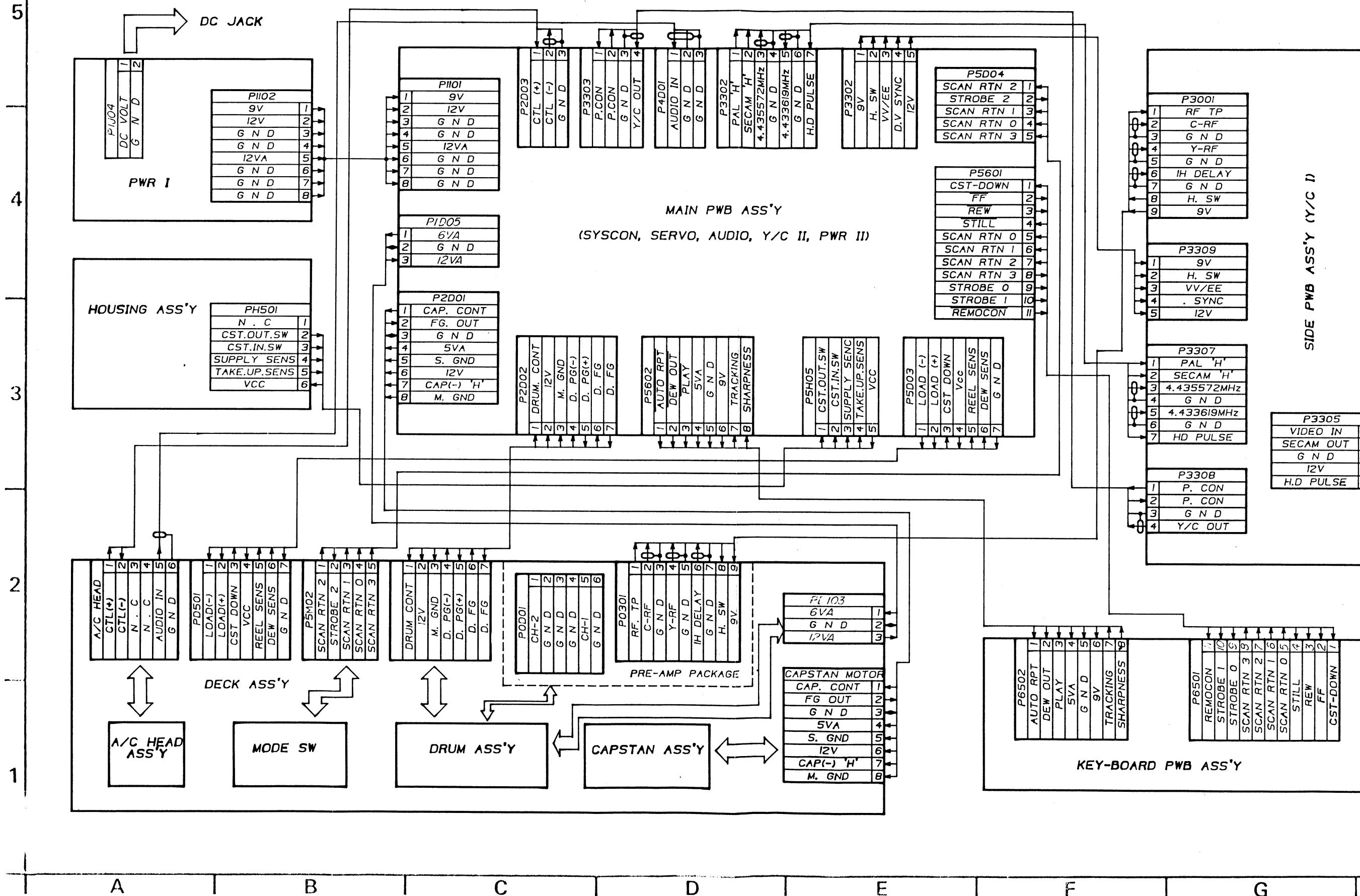
— CAPSTAN PHASE SIGNAL  
— CAPSTAN SPEED SIGNAL

— DRUM PHASE SIGNAL  
— DRUM SPEED SIGNAL

## 6-5 SYSTEM CONTROL CIRCUIT DIAGRAM



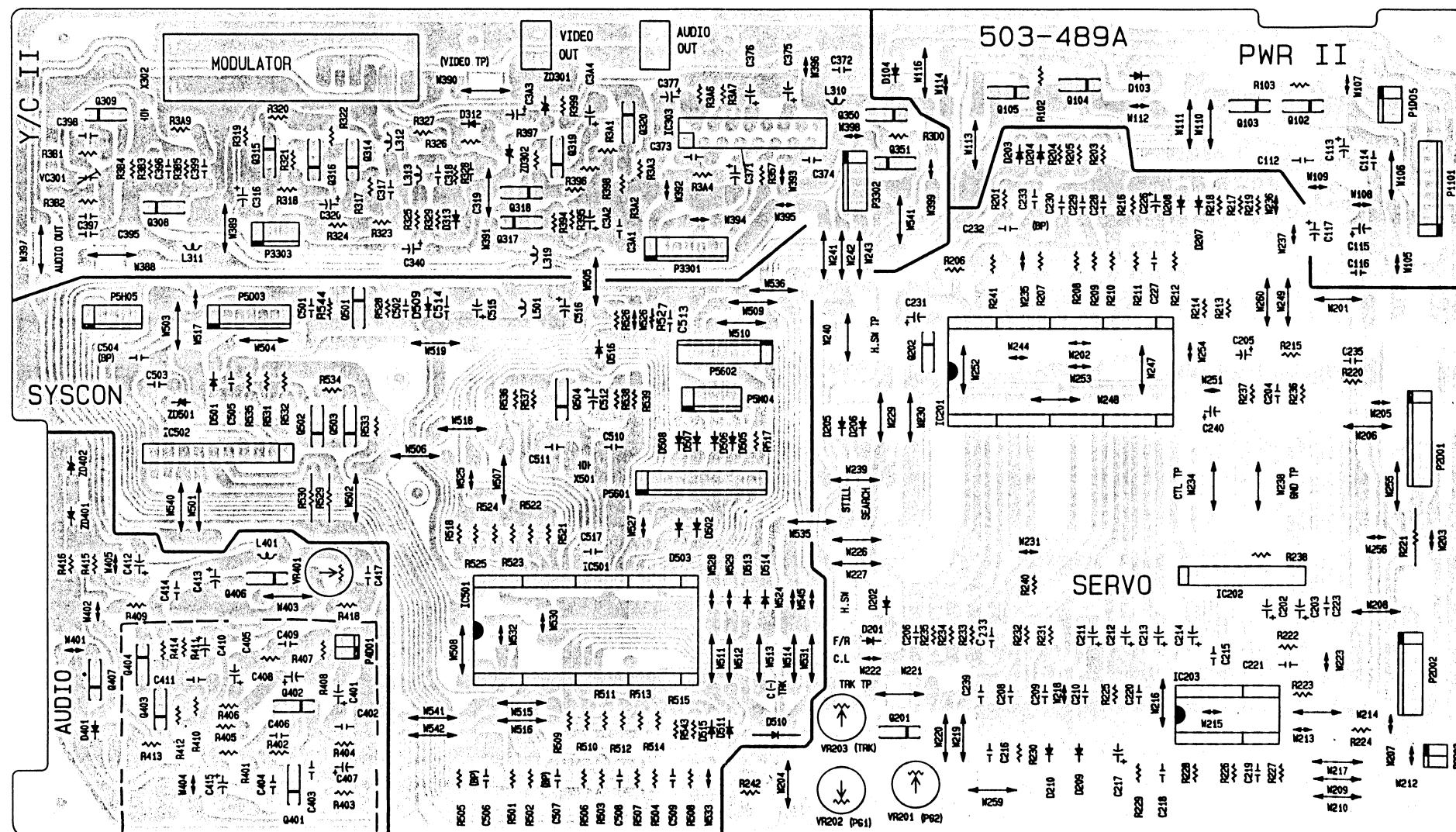
## **6-6 CONNECTION DIAGRAM**

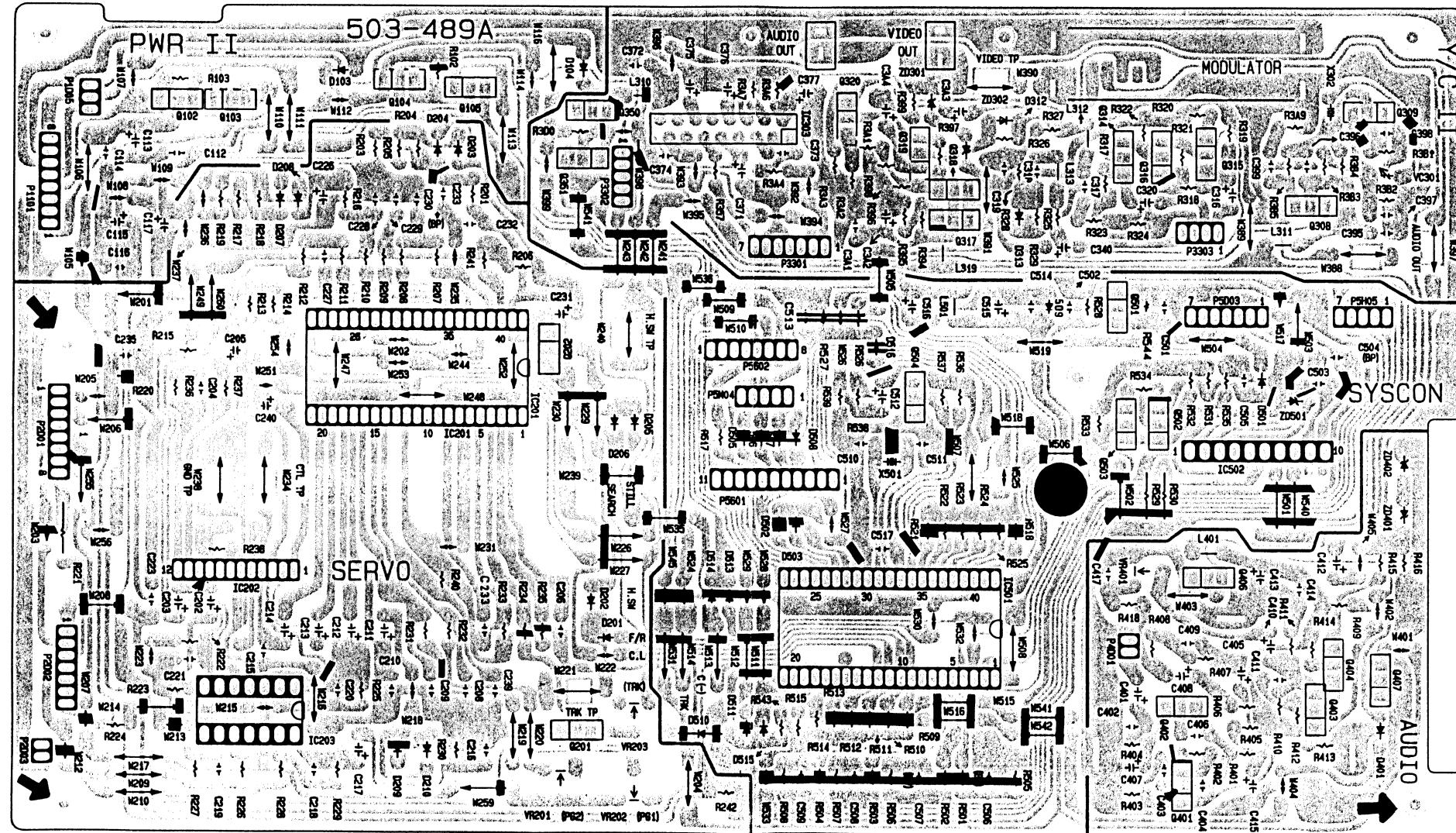


## 7. PRINTED WIRING BOARD

### 7-1 MAIN PWB

5  
4  
3  
2  
1





(Solder Side)

A

6

1

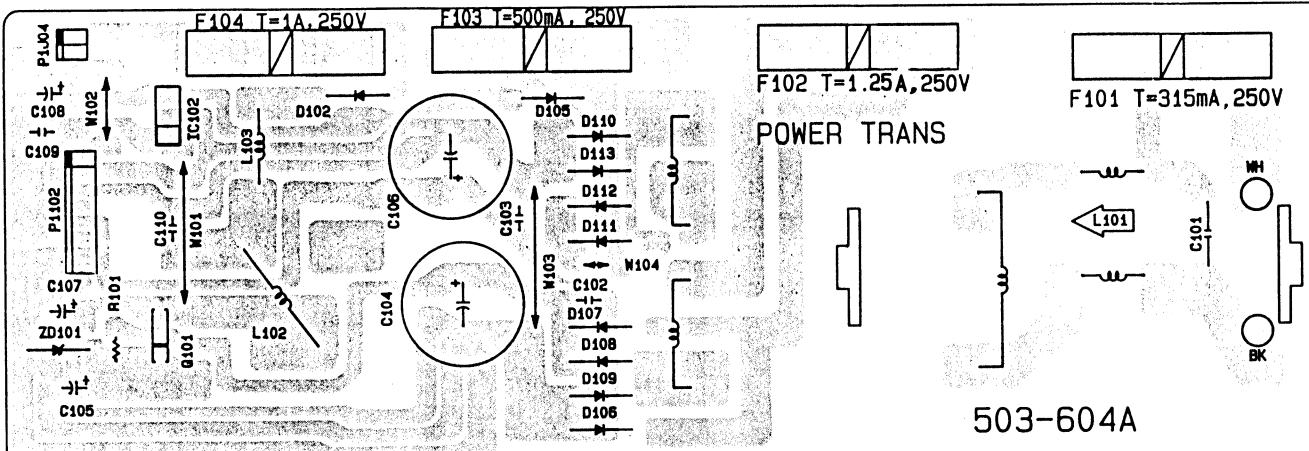
1

1

1

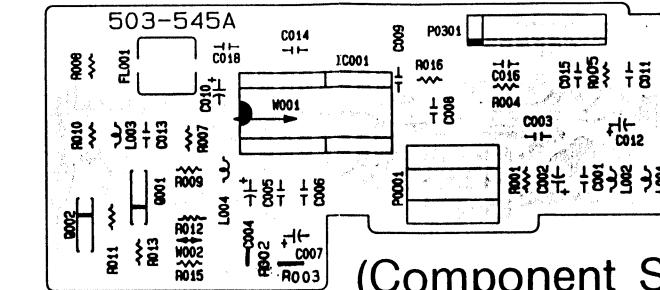
1

## 7-2 POWER PWB



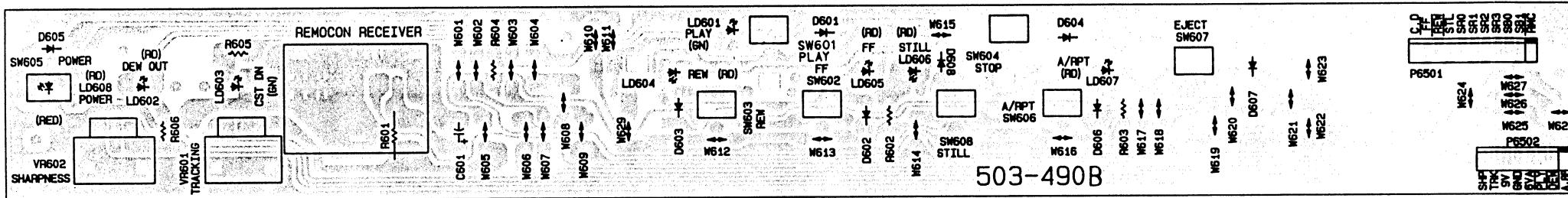
## (Component Side)

7-5 PRE-AMP PWB



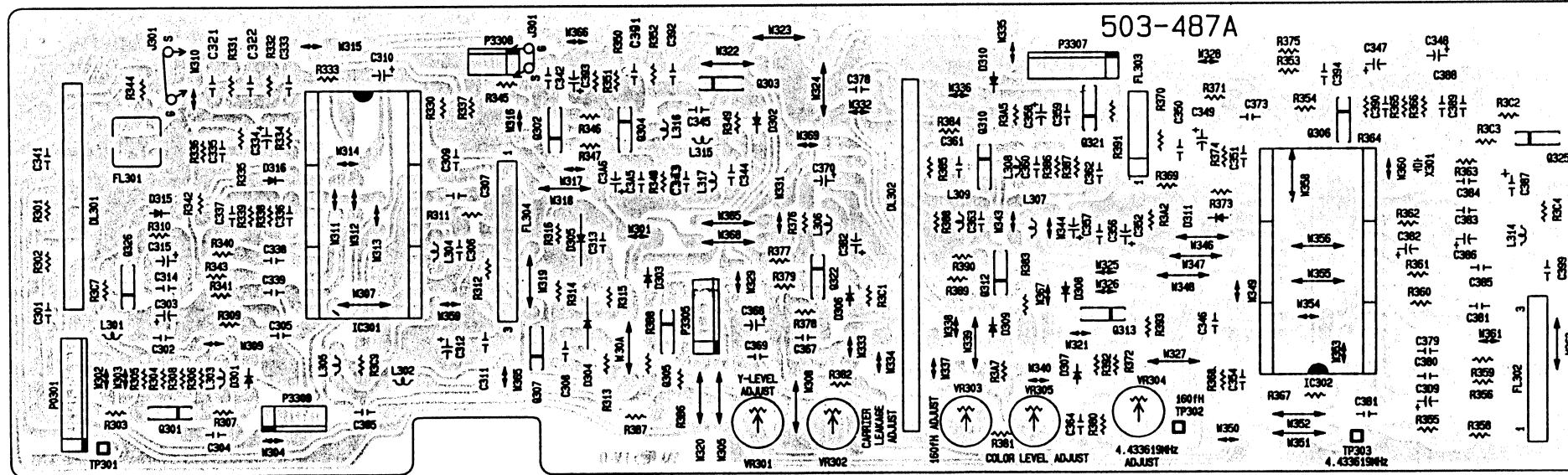
(Component Side)

## **7-3 KEY BOARD PWB**

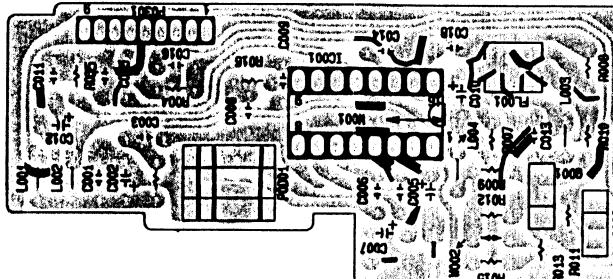


## (Component Side)

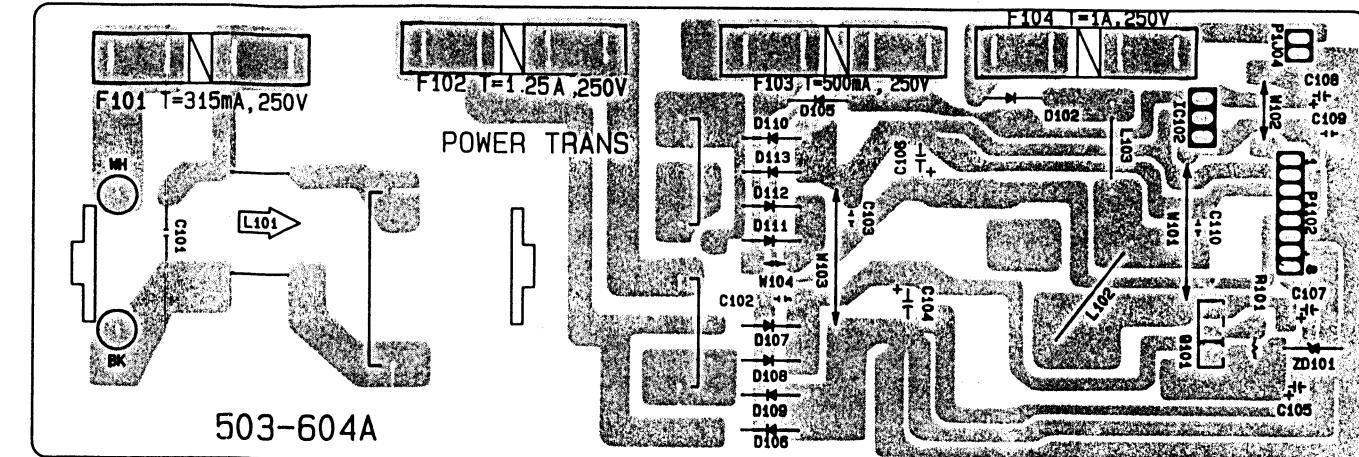
7-4 Y/C 1 PWB



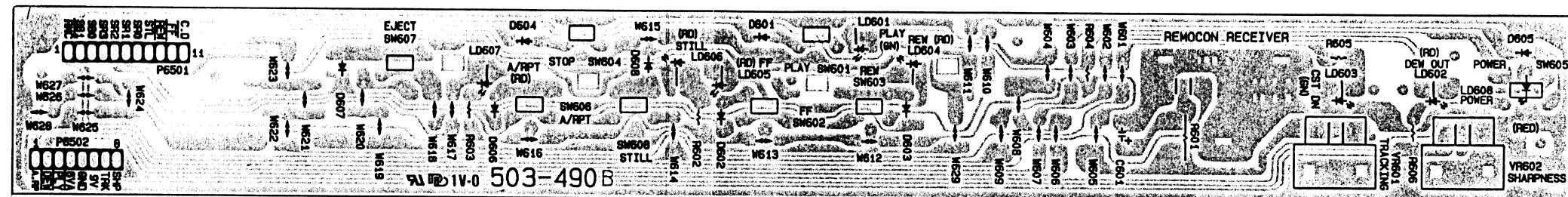
## (Component Side)



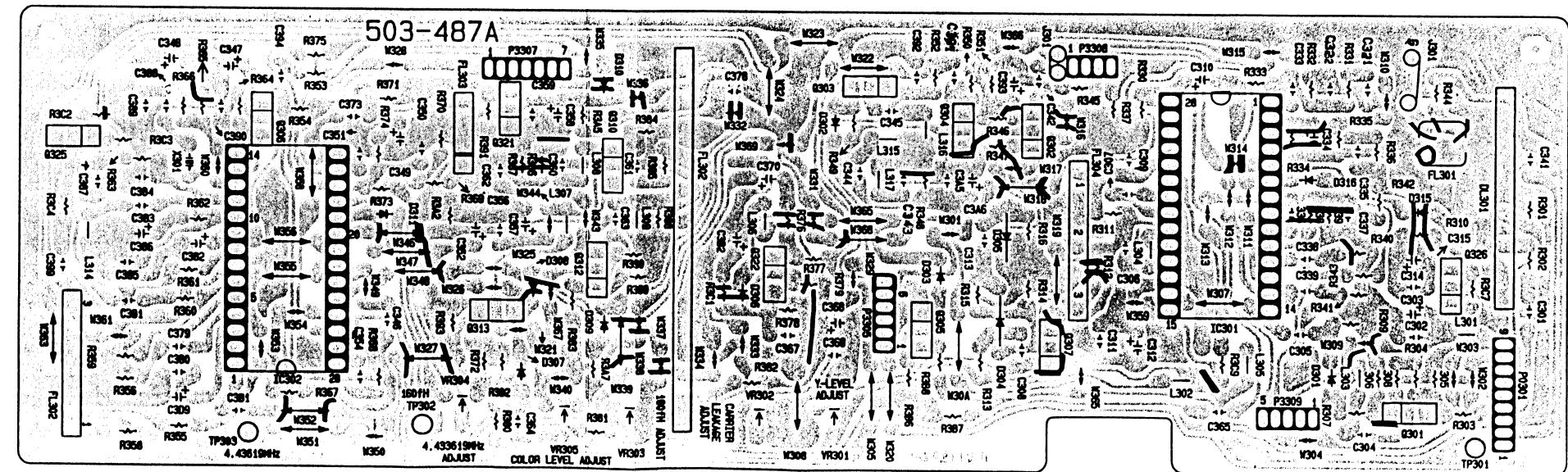
(Solder Side)



(Solder Side)



(Solder Side)



(Solder Side)

A

B

C

D

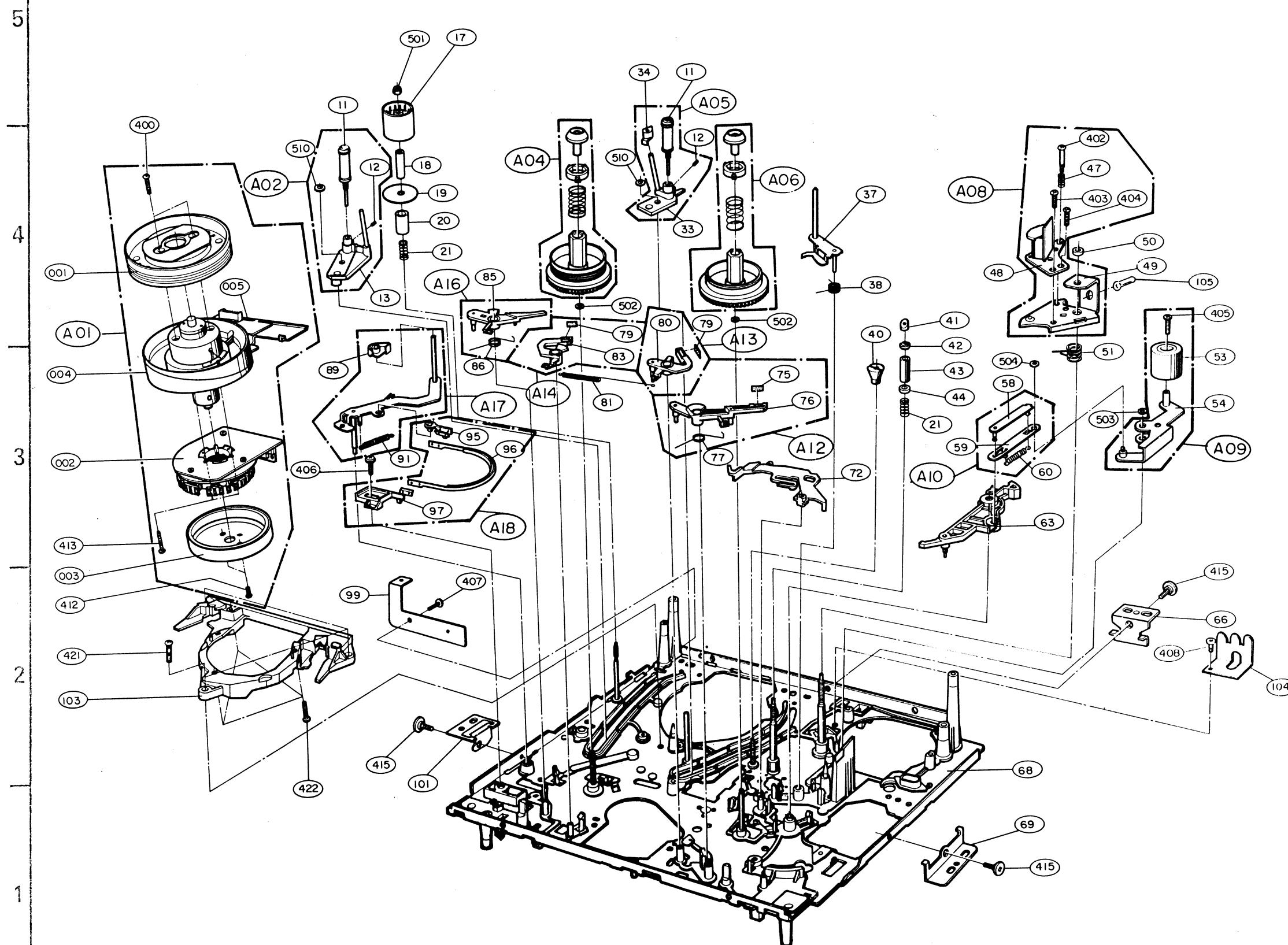
E

F

G

## 8. EXPLODED VIWES

### 8-1 MOVING MECHANISM SECTION(I)



A

B

C

D

E

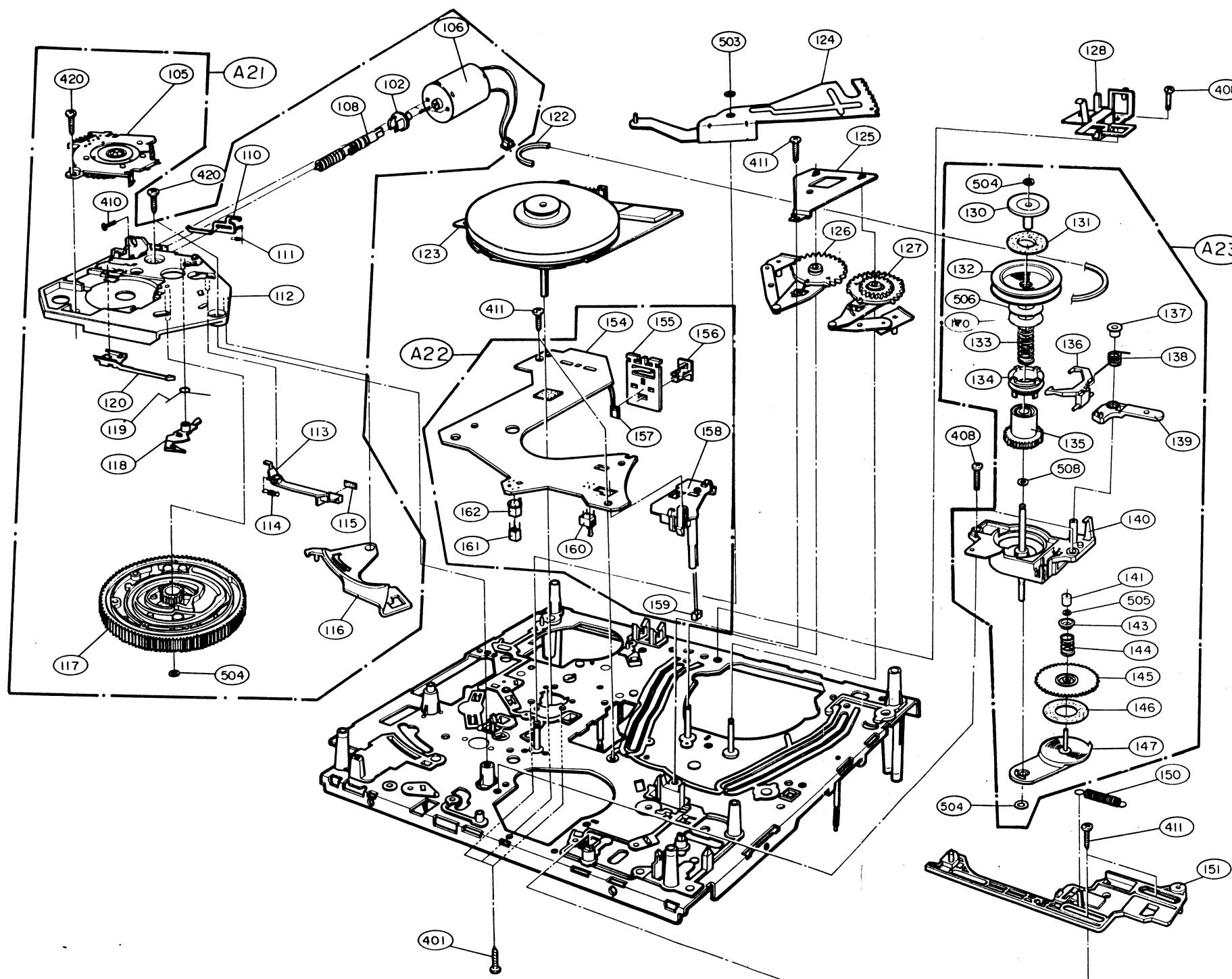
F

G

S : SERVICE PARTS  
NSP : NOT SERVICE PARTS

Rep. No.	Part No.	Description	Remarks
<b>PARTS SECTION</b>			
001	413-098C	DRUM AY, UPPER	S
002	414-065A	MOTOR AY, DRUM STATOR	S
or	414-081A	MOTOR AY, DRUM STATOR	S
003	414-065B	MOTOR AY, DRUM ROTOR	S
or	414-081B	MOTOR AY, DRUM ROTOR	S
004	413-086A	DRUM AY, LOWER	NSP
005	324-407A	HOLDER AY, PWB	NSP
011	434-041A	ROLLER AY, GUIDE	NSP
012	SKE182U	SCREW, SET M3x4CM3	S
013	225-118A	BASE AY, SLANT(L)	S
017	434-042A	ROLLER, IMP	S
018	378-010A	SLEEVE P(1)	S
019	256-400A	PLATE, LIMITER	S
020	341-044A	BUSHING P(1)	S
021	442-161A	SPRING P/4	S
032	225-120A	BASE AY, SLANT(R)	S
034	324-414A	HOLDER, SLANT	S
037	386-126A	ARM AY, TAKE UP	S
038	442-162B	SPRING, T/UP	S
040	389-002A	ADJUST, X	S
041	276-024A	CAP P(4)	S
042	389-003A	ADJUST P(4)	S
043	378-009A	SLEEVE P(4)	S
044	436-025A	FLANGE P(4)	S
047	442-125D	SPRING, AZIMUTH	S
048	523-051A	HEAD SUB AY, RPE	S
049	225-117A	BASE, A/C HEAD	S
050	354-030A	WASHER, A/C HEAD	S
051	442-158A	SPRING, A/C HEAD	S
053	434-037D	ROLLER AY, PINCH	S
054	386-122A	ARM SUB AY, PINCH	S
058	386-124A	ARM AY, SPRING	S
059	333-098A	LEVER, SPRING	S
060	442-160D	SPRING, PINCH	S
063	333-095A	LEVER AY, CONNECT	S
066	321-240A	BRACKET, MECH BACK	S
068	311-003A	CHASSIS AY, D-09	NSP
069	321-235A	BRACKET, MECH R	S
072	333-099A	LEVER, P. STOPPER	S
075	472-020B	FELT, S/O BRAKE	NSP
076	338-043A	BRAKE, SOFT TAKE UP	NSP
077	442-168A	SPRING, TAKE UP BRAKE	S
079	472-022A	FELT, MAIN BRAKE	NSP
080	338-042A	BRAKE, MAIN T/UP	NSP
081	442-202A	SPRING M-BRAKE	S
083	338-040A	BRAKE, MAIN SUPPLY	NSP
085	338-038A	BRAKE, S/O SUPPLY	S
086	442-167C	SPRING, SUPPLY	S
089	324-401A	HOLDER, T/POST	S
090	386-129A	ARM, TENSION	S
091	442-166A	SPRING, ARM TENSION	S
095	324-356A	HOLDER, BAND(B)	S
096	328-033A	BAND SUB AY, TENSION	S
097	324-357A	HOLDER, BAND(A)	S
099	321-280A	BRACKET, AMP.	S
101	321-239A	BRACKET, MECH. L.	S
103	225-115A	BASE AY, DRUM	S
104	321-314A	BRACKET, LUG	S
105	327-004A	CLAMP, CORD	S
<b>SCREWS, WASHERS, NUT</b>			
400	MOP1836J	SCREW, PS+3x8 W/PW6	S
401	MPK1522J	SCREW, MPK4-M2.6x4	S
402	353-046J	SCREW, SPECIAL (3x16 FZMY)	S
403	MPK1836J	SCREW, PSF,-3x8 FZ/MY	S
404	353-048C	SCR.W, CONE POINT 3x10	S
405	MBC1522J	SCR.W, MINI2.6x4	S
406	353-051B	SCREW, SPECIAL	S
407	ZWC1830J	SCREW, BRASSIER ST 3x6	S
408	MBC1836J	SCREW, BIND HEAD M3x8	S
409	MBC1839J	SCREW, BAND HEAD M3x10	S
412	MQX1830J	SCREW, PS+3x6 FZMY	S
413	MOP1543J	SCREW, PS+2.6x14 W/PW	S
415	353-062A	SCREW, STEP	S
421	MQX1839J	SCREW, PS+3x10	S
422	MQX1836J	SCREW, PS+3x8	S
501	352-019A	NUT, NYLON M3	S
502	354-027A	WASHER, P.S.	S
503	354-020F	WASHER, STOPPER	S
504	354-020D	WASHER, STOPPER	S
510	354-050C	WASHER, STOPPER	S
<b>ASSEMBLY PARTS SECTION</b>			
A01	413-087A	DRUM AY	S
A02	427-020A	POST AY, SLANT(L)	S
A04	456-016B	REEL AY	S
A05	427-021A	POST AY, SLANT(R)	S
A06	456-016A	REEL AY	S
A08	225-159A	BASE AY, AC HEAD	S
A09	386-121A	ARM AY, PINCH	S
A10	333-097A	LEVER AY, SPRING	S
A12	338-044A	BRAKE AY, SOFT T/UP	S
A13	338-041A	BRAKE AY, MAIN TAKE UP	S
A14	338-039A	BRAKE AY, MAIN SUPPLY	S
A16	338-037A	BRAKE AY, S/O SUPPLY	S
A17	386-128A	ARM AY TENSION	S
A18	324-355A	HOLDER AY, TENSION	S

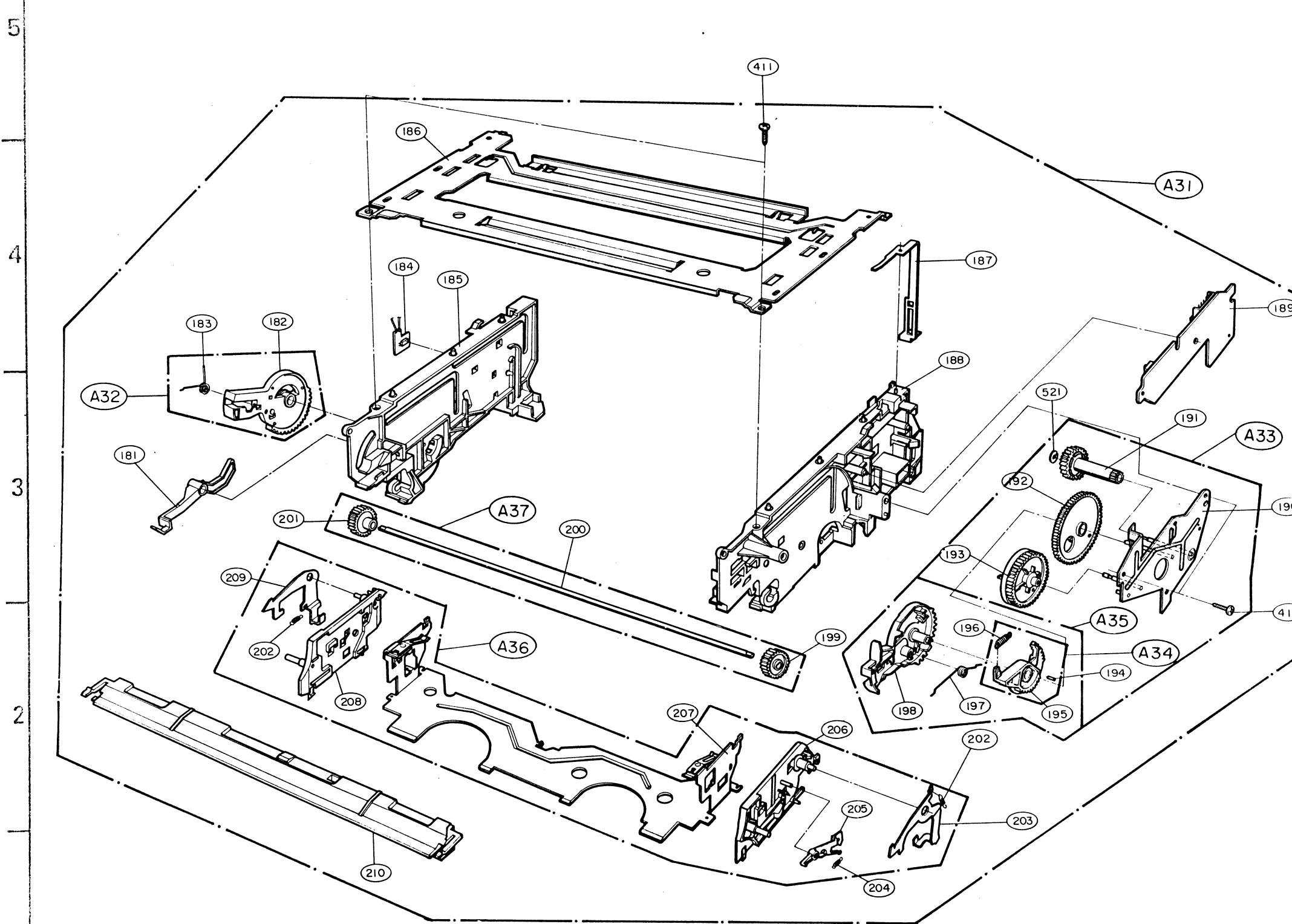
## **8-2 MOVING MECHANISM SECTION(II)**



S : SERVICE PARTS  
NSP : NOT SERVICE PARTS

Rep. No.	Part No.	Description	Remarks
<b>PARTS SECTION</b>			
102	432-026A	PULLEY, MOTOR	S
105	556-085A	SWITCH, MODE	S
106	414-051A	MOTOR AY, LOADING	S
108	437-004A	WORM AY	S
110	333-090A	LEVER, Q, ACTUATOR	S
111	462-155A	SPRING, Q, ACTUATOR	S
112	321-224A	BRACKET AY, CAM	S
113	333-092A	LEVER, CAPS, SOFT	NSP
114	442-156A	SPRINGS, CAPS, SOFT	NSP
115	472-020A	FELT	S
116	333-135A	LEVER AY, B FOLLOWER	S
117	374-003A	CAM, MODE	S
118	333-091A	LEVER, Q, BRAKE	S
119	442-157A	SPRING, Q, BRAKE	S
120	334-025A	STOPPER, Q, BRAKE	S
122	452-030A	BELT, REEL	S
123	414-064A	MOTOR, CAPSTAN XV-III	S
124	435-122A	GEAR AY, RACK	S
125	321-222A	BRACKET (L)	S
126	435-120A	GEAR AY, LOAD(R)	S
127	435-118A	GEAR AY, LOAD(L)	S
128	324-380A	HOLDER AY, BRUSH	S
130	334-023A	STOPPER, CLUTCH(A)	NSP
131	472-018C	FELT	NSP
132	432-025A	PULLEY(A)	S
133	442-150A	SPRING, CLUTCH(A)	S
134	333-084A	LEVER, CLUTCH(A)	S
135	435-075A	GEAR, CLUTCH(A)	S
136	386-115A	ARM(L)	S
137	334-024A	STOPPER, LEVER	S
138	442-151A	SPRING, ARM(L)	S
139	333-085A	LEVER, CONNECT(A)	S
140	321-219A	BRACKET SUB AY, CLUTCH	S
141	431-024A	IDLER, STOPPER	S
143	431-023A	IDLER, WASHER	S
144	442-152A	SPRING, IDLER	S
145	435-117A	GEAR, IDLER	NSP
146	472-018B	FELT	NSP
147	431-022A	IDLER SUB AY	S
150	442-149A	SPRING, F. PLATE	S
151	256-357A	PLATE AY, FUNCTION	S
154	503-481A	PCB, DECK JUNCTION	S
155	321-221A	BRACKET, DEW	S
156	324-354A	HOLDER, DEW	S
158	324-379A	HOLDER, LED	S
159	653-020B	LED GL451	S
160	556-061A	SWITCH CST	S
161	657-010B	SENSOR, OPTO SG-2BC-D	S
162	324-399A	HOLDER' SENSOR(B)	S
<b>SCREWS, WASHER</b>			
401	MPK1522J	SCREW, MPK+-M2.6x4	S
408	MBC1836J	SCREW, BIND HEAD M3x8	S
410	MPC1826J	SCREW, MPC+3x5	S
411	353-046B	SCREW, SPECIAL (3x8 FZMY)	S
420	353-046I	SCREW, SPECIAL 3x16	S
503	354-020F	WASHER, STOPPER	S
504	354-020D	WASHER, STOPPER	S
505	354-027B	WASHER, POLYSLIDE	S
506	354-027C	WASHER, POLYSLIDE	S
508	354-027D	WASHER, POLYSLIDE	S
<b>ASSEMBLY PARTS SECTION</b>			
A21	321-223A	BRACKET AY, LOADING	S
A22	511-481A	PCB AY, REEL	S
A23	321-218A	BRACKET AY, CLUTCH	S

## 8-3 CASSETTE HOUSING SECTION



S : SERVICE PARTS  
NSP : NOT SERVICE PARTS

Rep. No.	Part No.	Description	Remarks
<b>PARTS SECTION</b>			
181	465-014A	OPENER, DOOR	NSP
182	435-129A	GEAR, ARM(L)	NSP
183	442-172A	SPRING, ARM GEAR(L)	NSP
184	511-393A	PCB AY, SUP D-09 HOUSING	S
185	321-231A	BRACKET, SIDE(L)	NSP
186	256-361A	PLATE, TOP	NSP
187	256-399A	PLATE, GROUND	NSP
188	321-230A	BRACKET, SIDE(R)	NSP
189	511-392A	PCB AY, T/UP D-09 HOUSING	S
190	321-233A	BRACKET SUB AY, RIGHT	NSP
191	435-136A	GEAR, WORM	NSP
192	435-130A	GEAR, IDLER	NSP
193	435-131A	GEAR, CONNECT	NSP
194	356-101A	PIN, CUSHION	NSP
195	435-135A	GEAR, CUSHION	NSP
196	442-174A	SPRING, CUSHION	NSP
197	442-173A	SPRING, ARM GEAR(R)	NSP
198	435-134A	GEAR, ARM(R)	NSP
199	435-127A	GEAR, DRIVE(R)	NSP
200	423-190A	SHAFT, DRIVE	NSP
201	435-142A	GEAR, DRIVE(L)	NSP
202	442-169A	SPRING, CASSETTE PROTECT	NSP
203	386-130A	ARM, CASSETTE PROTECT(R)	NSP
204	442-170A	SPRING, LID OPENER	NSP
205	465-013A	OPENER, LID	NSP
206	321-227A	BRACKET, HOLDER(R)	NSP
207	324-360A	HOLDER SUB AY, CASSETTE	NSP
208	321-229A	HOLDER, HOLDER(L)	NSP
209	386-131A	ARM, CST PROTECT(L)	NSP
210	384-028A	GUIDE, CST	NSP
<b>SCREW, WASHER</b>			
411	353-046B	SCREW, SPECIAL (3x8FZMY)	S
521	354-033A	WASHER, STOPPER	NSP
<b>ASSEMBLY SECTION</b>			
A31	219-010A	HOUSING, F/L(D-09)	S
A32	435-128A	GEAR AY, ARM(L)	S
A33	321-232A	BRACKET AY, RIGHT	S
A34	435-169A	GEAR AY, CUSHION	S
A35	435-132A	GEAR AY, ARM(R)	S
A36	324-358A	HOLDER AY, CASSETTE	NSP
A37	435-126A	GEAR AY, DRIVE	NSP

## 8-4 MAIN FRAME, CASING SECTION

5

4

3

2

1

A

B

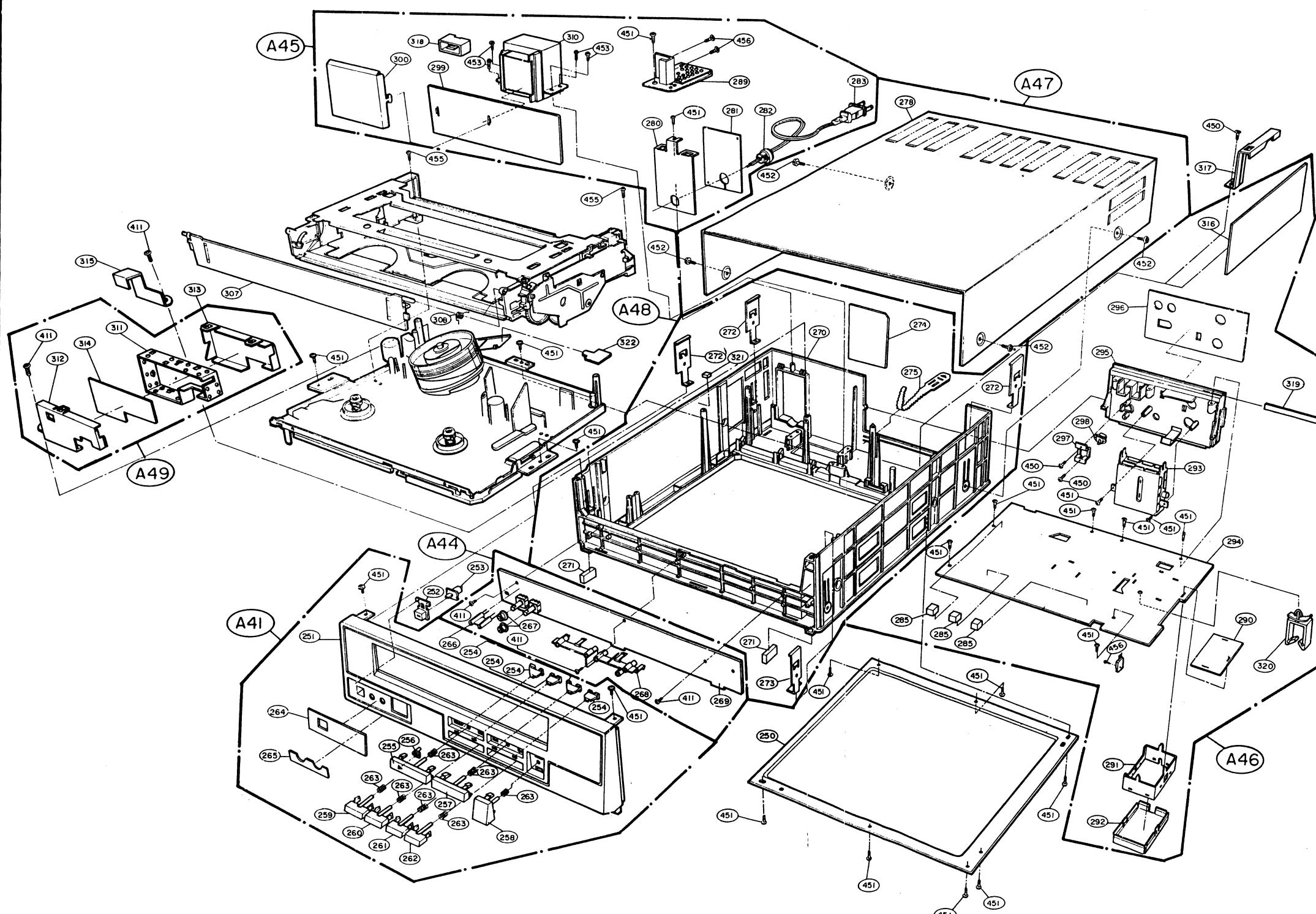
C

D

E

F

G



S : SERVICE PARTS  
NSP : NOT SERVICE PARTS

Rep. No.	Part No.	Description	Remarks
<b>PARTS SECTION</b>			
250	221-221A	COVER, BOTTOM	S
251	258-159C	PANEL, FRONT	NSP
252	275-206A	BUTTON, POWER	NSP
253	236-132A	WINDOW, POWER LAMP	NSP
254	236-134A	WINDOW, LAMP	NSP
255	275-207A	BUTTON, PLAY	NSP
256	236-133A	WINDOW, PLAY LAMP	NSP
257	275-208A	BUTTON, STOP	S
258	275-209A	BUTTON, EJECT	S
259	275-230A	BUTTON, REW	S
260	275-210A	BUTTON, FF	S
261	275-231A	BUTTON, STILL	S
262	442-075A	BUTTON, AUTO REPEAT	S
263	236-131B	WINDOW, DECORATION	NSP
264	243-461B	LABEL TRACKING	NSP
265	324-403A	HOLDER, DEW LED	NSP
266	273-049A	KNOB, TRACKING	S
267	324-064A	HOLDER, LED	NSP
268	511-490A	PWB AY, KEY-BOARD	S
269	315-069A	FRAME, MAIN	NSP
270	477-008B	RUBBER, FOOT	NSP
271	321-265A	BRACKET, TOP CASE(A)	S
272	321-266A	BRACKET, TOP CASE(B)	S
273	328-014B	BAND POWER CORD	S
275	217-157A	CASE, TOP	NSP
278	321-262D	BRACKET, POWER	NSP
280	243-459B	LABEL, POWER	NSP
281	324-009B	HOLDER POWER CORD	NSP
283	681-004A	CORD, POWER	NSP
285	447-016B	CUSHION, MAIN BOARD	S
289	256-468A	PLATE, HEAT SINK	NSP
290	256-317A	PLATE, Y/C SHIELD	NSP
291	217-135A	CASE, Y/C SHIELD	NSP
292	221-160D	COVER, Y/C SHIELD	S
293	592-012A	MODULATOR	S
294	511-489A	PWB ASS'Y MAIN	S
295	258-161A	PANEL, DISTRIBUTOR	S
296	243-458E	LABEL, JACK	NSP
297	321-264A	BRACKET, DC JACK	NSP
298	572-033A	JACK, DC POWER	NSP
299	511-604A	PWB ASS'Y POWER	S
300	221-144A	COVER, INSULATION	S
307	226-022E	DOOR, CST	S
308	442-191A	SPRING, CST DOOR	S
310	641-017B	TRANS, POWER 220V 50Hz or	S
311	641-517B	TRANS, POWER 220V 50Hz or	S
312	217-190A	TRANS, POWER 220V 50Hz	S
313	217-192A	CASE, PRE-AMP	S
314	511-545A	COVER, PRE-AMP (A)	S
315	321-306A	PWB ASS'Y, PRE-AMP	S
316	511-487A	BRACKET, PRE-AMP	S
317	324-344A	PWB ASS'Y, Y/C 1	S
318	221-157A	HOLDER, TUNING PWB	S
319	243-476B	COVER, FUSE	S
320	327-008A	LABEL, CAUTION	S
321	447-056F	CLAMP WIRE	S
322	511-482A	CUSHION, MAIN BOARD	S
		PWB ASS'Y POWER REG. IC	S
<b>ASSEMBLY PARTS SECTION</b>			
A41	258-160C	PANEL ASS'Y, FRONT	S
A44	235-502A	BOARD ASS'Y, KEY	S
A45	235-589A	BOARD ASS'Y, POWER	S
A46	235-500A	BOARD ASS'Y, MAIN	NSP
A48	315-085A	FRAME ASS'Y, MAIN	S
A49	235-480A	BOARD ASS'Y, PRE-AMP	S
<b>SCREWS</b>			
411	353-046B	SCREW, SPECIAL	S
450	353-046C	SCREW, SPECIAL	S
451	353-051A	SCREW, SPECIAL	S
452	353-076A	SCREW, DECORATION	S
453	353-046F	SCREW, SPECIAL	S
455	MPC1836J	SCREW, MPC+3x8 FZMY	S

## 9. REPLACEMENT PARTS LIST

### 9-1 ELECTRICAL PARTS

S : Service Part

Replacement No.	Part No.	Description	Remarks
<b>CAPACITORS</b>			
C001	CK223Z02	Capacitor, Ceramic 0.022MF-Z 50V	S
C002	CE476C6B	Capacitor, Electrolytic 47MF-16V	S
C003	CK223Z02	Capacitor, Ceramic 0.022MF-Z 50V	S
C004	CE106C6B	Capacitor, Electrolytic 10MF-16V	S
C005	CQ103J01	Capacitor, Polyester 0.01MF-J 50V	S
C006	CQ103J01	Capacitor, Polyester 0.01MF-J 50V	S
C007	CE106C6B	Capacitor, Electrolytic 10MF-16V	S
C008	CK103Z02	Capacitor, Ceramic 0.01MF-Z 50V	S
C009	CC151J01	Capacitor, Ceramic 150PF-J SL 50V	S
C010	CE474F6B	Capacitor, Electrolytic 0.47MF-50V	S
C011	CK103Z02	Capacitor, Ceramic 0.01MF-Z 50V	S
C012	CE476C6B	Capacitor, Electrolytic 47MF-16V	S
C013	CC331J01	Capacitor, Ceramic 330PF-J SL 50V	S
C014	CK103Z02	Capacitor, Ceramic 0.01MF-Z 50V	S
C015	CK103Z02	Capacitor, Ceramic 0.01MF-Z 50V	S
C016	CK103Z02	Capacitor, Ceramic 0.01MF-Z 50V	S
C018	CK103Z02	Capacitor, Ceramic 0.01MF-Z 50V	S
C101	624-018A	Capacitor, Line DE7100 472P	S
C102	CK103Z02	Capacitor, Ceramic 0.01MF-Z 50V	S
C103	CK103Z02	Capacitor, Ceramic 0.01MF-Z 50V	S
C104	CE228D01	Capacitor, Electrolytic 2200MF-25V	S
C105	CE476D0B	Capacitor, Electrolytic 47MF-25V	S
C106	CE228D01	Capacitor, Electrolytic 2200MF-25V	S
C107	CE476C0B	Capacitor, Electrolytic 47MF-16V	S
C108	CE476C0B	Capacitor, Electrolytic 47MF-16V	S
C109	CK103Z02	Capacitor, Ceramic 0.01MF-Z 50V	S
C110	CK104Z02	Capacitor, Ceramic 0.1MF-Z 50V	S
C112	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C113	CE476D0Q	Capacitor, Electrolytic 47MF-25V	S
C114	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C115	CE476D0Q	Capacitor, Electrolytic 47MF-25V	S
C116	CK223Z0Q	Capacitor, Ceramic 0.022MF-Z 50V	S
C117	CE476D0Q	Capacitor, Electrolytic 47MF-25V	S
C118	CE105F6B	Capacitor, Electrolytic 1MF-50V	S
C119	CE105F6B	Capacitor, Electrolytic 1MF-50V	S
C202	CE106C6C	Capacitor, Electrolytic 10MF-16V	S
C203	CE106C6C	Capacitor, Electrolytic 10MF-16V	S
C204	CQ102K0A	Capacitor, Polyester 0.001MF-K 50V	S
C205	CE106C6C	Capacitor, Electrolytic 10MF-16V	S
C206	CQ823K0A	Capacitor, Polyester 0.0082MF-K 50V	S
C208	CL473J0C	Capacitor, Polypropylene 0.047MF-J 50V	S
C209	CL473J0C	Capacitor, Polypropylene 0.047MF-J 50V	S
C210	CQ103K0A	Capacitor, Polyester 0.01MF-K 50V	S
C211	CE106C6C	Capacitor, Electrolytic 10MF-16V	S
C212	CE106C6C	Capacitor, Electrolytic 10MF-16V	S
C213	CE106C6C	Capacitor, Electrolytic 10MF-16V	S
C214	CE106C6C	Capacitor, Electrolytic 10MF-16V	S
C215	CQ223K0A	Capacitor, Polyester 0.022MF-K 50V	S
C216	CQ103K0A	Capacitor, Polyester 0.01MF-K 50V	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
C217	CE106C6C	Capacitor, Electrolytic 10MF-16V	S
C218	CQ102K0A	Capacitor, Polyester 0.001MF-K 50V	S
C219	CQ102K0A	Capacitor, Polyester 0.001MF-K 50V	S
C220	CK101K0B	Capacitor, Ceramic 100PF-K 50V	S
C221	CQ223K0A	Capacitor, Polyester 0.022MF-K 50V	S
C223	CQ104K0A	Capacitor, Polyester 0.1MF-K 50V	S
C225	CQ223K0A	Capacitor, Polyester 0.022MF-K 50V	S
C226	CE226C0Q	Capacitor, Electrolytic 22MF-16V	S
C227	CQ103K0A	Capacitor, Polyester 0.01MF-K 50V	S
C228	CQ103K0A	Capacitor, Polyester 0.01MF-K 50V	S
C229	CQ103K0A	Capacitor, Polyester 0.01MF-K 50V	S
C230	CQ103K0A	Capacitor, Polyester 0.01MF-K 50V	S
C231	CE226C0Q	Capacitor, Electrolytic 22MF-16V	S
C232	CQ332K0A	Capacitor, Polyester 0.0033MF-K 50V	S
C233	CE105F0S	Capacitor, Electrolytic 1MF-50V	S
C235	CQ223K0A	Capacitor, Polyester 0.022MF-K 50V	S
C239	CQ223K0A	Capacitor, Polyester 0.022MF-K 50V	S
C240	CE106C6C	Capacitor, Electrolytic 10MF-16V	S
C301	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C302	CJ223ZMT	Capacitor, Ceramic 0.022UF-Z 25V	S
C303	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C304	CC560J0A	Capacitor, Ceramic 56PF-J SL 50V	S
C305	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C306	CK473Z0B	Capacitor, Ceramic 0.047MF-Z 50V	S
C307	CC820J0C	Capacitor, Ceramic 82PF-J 50V	S
C308	CC101J0A	Capacitor, Ceramic 100PF-J SL 50V	S
C309	CC220K0A	Capacitor, Ceramic 22PF-K SL 50V	S
C310	CE225F6C	Capacitor, Electrolytic 2.2MF-50V	S
C311	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C312	CE107C0Q	Capacitor, Electrolytic 100MF-16V	S
C313	CK821K0B	Capacitor, Ceramic 820PF-K 50V	S
C314	CJ223ZMT	Capacitor, Ceramic 0.022UF-Z 25V	S
C315	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C316	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C317	CC271J0A	Capacitor, Ceramic 270PF-J SL 50V	S
C318	CC221J0A	Capacitor, Ceramic 220PF-J SL 50V	S
C319	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C320	CE475F0Q	Capacitor, Electrolytic 4.7MF-50V	S
C321	CC560J0A	Capacitor, Ceramic 56PF-J SL 50V	S
C322	CC181J0A	Capacitor, Ceramic 180PF-J SL 50V	S
C333	CQ104K0A	Capacitor, Polyester 0.1MF-K 50V	S
C334	CE226C0Q	Capacitor, Electrolytic 22MF-16V	S
C335	CQ682K0A	Capacitor, Polyester 0.0068MF-K 50V	S
C336	CC101J0A	Capacitor, Ceramic 100PF-J 50V	S
C337	CC151J0A	Capacitor, Ceramic 150PF-J 50V	S
C338	CC560J0A	Capacitor, Ceramic 56PF-J SL 50V	S
C339	CC221J0A	Capacitor, Ceramic 220PF-J SL 50V	S
C340	CE475F0Q	Capacitor, Electrolytic 4.7MF-J 50V	S
C341	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C342	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C343	CK473Z0B	Capacitor, Ceramic 0.047MF-Z 50V	S
C344	CK473Z0B	Capacitor, Ceramic 0.047MF-Z 50V	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
C345	CC220K0A	Capacitor, Ceramic 22PF-K SL 50V	S
C346	CQ223J0A	Capacitor, Polyester 0.022MF-J 50V	S
C347	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C348	CE107C0Q	Capacitor, Electrolytic 100MF-16V	S
C349	CE475F0Q	Capacitor, Electrolytic 4.7MF-50V	S
C350	CJ223ZMT	Capacitor, Ceramic 0.022UF-Z 25V	S
C351	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C352	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C354	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C356	CJ223ZMT	Capacitor, Ceramic 0.022UF-Z 25V	S
C357	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C358	CE226C0Q	Capacitor, Electrolytic 22MF-16V	S
C359	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C360	CC220K0A	Capacitor, Ceramic 22PF-K SL 50V	S
C361	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C362	CK681K0B	Capacitor, Ceramic 680PF-K 50V	S
C363	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C364	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C365	CC221J0A	Capacitor, Ceramic 220PF-J SL 50V	S
C367	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C368	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C369	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C370	CE226C0Q	Capacitor, Electrolytic 22MF-16V	S
C371	CE106C0Q	Capacitor, Electrolytic 10MF-16V	S
C372	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C373	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C374	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C375	CE475F0Q	Capacitor, Electrolytic 4.7MF-50V	S
C376	CE475F0Q	Capacitor, Electrolytic 4.7MF-50V	S
C377	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C378	CK473Z0B	Capacitor, Ceramic 0.047MF-Z 50V	S
C379	CQ332J0A	Capacitor, Polyester 0.0033MF-J 50V	S
C380	CQ332J0A	Capacitor, Polyester 0.0033MF-J 50V	S
C381	CC391J0A	Capacitor, Ceramic 390PF-J SL 50V	S
C382	CE106C0Q	Capacitor, Electrolytic 10MF-16V	S
C383	CQ563K0A	Capacitor, Polyester 0.056MF-K 50V	S
C384	CK472K0B	Capacitor, Ceramic 0.0047MF-K 50V	S
C385	CQ104K0A	Capacitor, Polyester 0.1MF-K 50V	S
C386	CE106C0Q	Capacitor, Electrolytic 10MF-16V	S
C387	CE475F0Q	Capacitor, Electrolytic 4.7MF-50V	S
C388	CC100C0C	Capacitor, Ceramic 10PF-C 50V	S
C389	CC150J0A	Capacitor, Ceramic 15PF-J 50V	S
C390	CC820J0C	Capacitor, Ceramic 82PF-J 50V	S
C391	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C392	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C393	CE105F0Q	Capacitor, Electrolytic 1MF-50V	S
C394	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C395	CK473Z0B	Capacitor, Ceramic 0.047MF-Z 50V	S
C396	CK681K0B	Capacitor, Ceramic 680PF-K 50V	S
C397	CC820J0C	Capacitor, Ceramic 82PF-J 50V	S
C398	CQ103J0A	Capacitor, Polyester 0.01MF-J 50V	S
C399	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
C3A1	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C3A2	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C3A3	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C3A4	CE477A0B	Capacitor, Electrolytic 470MF-6.3V	S
C3A5	CJ223ZMT	Capacitor, Ceramic 0.022UF-Z 25V	S
C3A6	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C3B1	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C3B2	CE475F0Q	Capacitor, Electrolytic 4.7MF-50V	S
C401	CE106C0Q	Capacitor, Electrolytic 10MF-16V	S
C402	CQ272K0A	Capacitor, Polyester 0.0027MF-K 50V	S
C403	CC101J0A	Capacitor, Ceramic 100PF-J SL 50V	S
C404	CC101J0A	Capacitor, Ceramic 100PF-J SL 50V	S
C405	CE106C0Q	Capacitor, Electrolytic 10MF-16V	S
C406	CC101J0A	Capacitor, Ceramic 100PF-J SL 50V	S
C407	CE475D0Q	Capacitor, Electrolytic 4.7MF-25V	S
C408	CE106C0Q	Capacitor, Electrolytic 10MF-16V	S
C409	CQ103J0A	Capacitor, Polyester 0.01MF-J 50V	S
C410	CE106C0Q	Capacitor, Electrolytic 10MF-16V	S
C411	CC561J0A	Capacitor, Ceramic 560PF-J SL 50V	S
C412	CE106C0Q	Capacitor, Electrolytic 10MF-16V	S
C413	CE107C0Q	Capacitor, Electrolytic 100MF-16V	S
C414	CK223Z0B	Capacitor, Ceramic 0.022MF-Z 50V	S
C415	CE107C0Q	Capacitor, Electrolytic 100MF-16V	S
C417	CQ273K0A	Capacitor, Polyester 0.027MF-K 50V	S
C501	CK102Z0B	Capacitor, Ceramic 0.001MF-Z 50V	S
C502	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C503	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C504	CE105E0S	Capacitor, Electrolytic 1MF-50V	S
C505	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C506	CE105F0S	Capacitor, Electrolytic 1MF-50V	S
C507	CE105F0S	Capacitor, Electrolytic 1MF-50V	S
C508	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C509	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C510	CC330J0A	Capacitor, Ceramic 33PF-J SL 50V	S
C511	CC330J0A	Capacitor, Ceramic 33PF-J SL 50V	S
C512	CE226C0Q	Capacitor, Electrolytic 22MF-16V	S
C513	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C514	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C515	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C516	CE476C0Q	Capacitor, Electrolytic 47MF-16V	S
C517	CK103Z0B	Capacitor, Ceramic 0.01MF-Z 50V	S
C601	CE476C0B	Capacitor, Electrolytic 47MF-16V	S
CH01	CK473Z02	Capacitor, Ceramic 0.047MF-Z 50V	S
CH02	CK472Z02	Capacitor, Ceramic 0.047MF-Z 50V	S

### DIODES

D102	652-001B	Diode, Rectifier 1N4001	S
D103	652-019T	Diode, Detect, SW 1SS133	S
D104	652-019T	Diode, Detect, SW 1SS133	S
D105	652-001B	Diode, Rectifier 1N4001	S
D106	652-025A	Diode, Rectifier IN5393	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
D107	652-025A	Diode, Rectifier IN5353	S
D108	652-025A	Diode, Rectifier IN5393	S
D109	652-025A	Diode, Rectifier IN5393	S
D110	652-025A	Diode, Rectifier IN5393	S
D111	652-025A	Diode, Rectifier IN5393	S
D112	652-025A	Diode, Rectifier IN5393	S
D113	652-025A	Diode, Rectifier IN5393	S
D201	652-019T	Diode, Detect, SW 1SS133	S
D202	652-019T	Diode, Detect, SW 1SS133	S
D203	652-019T	Diode, Detect, SW 1SS133	S
D204	652-019T	Diode, Detect, SW 1SS133	S
D205	652-019T	Diode, Detect, SW 1SS133	S
D206	652-019T	Diode, Detect, SW 1SS133	S
D207	652-019T	Diode, Detect, SW 1SS133	S
D208	652-019T	Diode, Detect, SW 1SS133	S
D209	652-019T	Diode, Detect, SW 1SS133	S
D210	652-019T	Diode, Detect, SW 1SS133	S
D301	652-019T	Diode, Detect, SW 1SS133	S
D302	652-019T	Diode, Detect, SW 1SS133	S
D303	652-019T	Diode, Detect, SW 1SS133	S
D304	651-014T	Diode, Detect, SW 1S2471	S
D305	651-007B	Diode, Rectifier IN60S	S
D306	651-019T	Diode, Detect, SW 1SS133	S
D307	652-019T	Diode, Detect, SW 1SS133	S
D308	652-019T	Diode, Detect, SW 1SS133	S
D309	652-019T	Diode, Detect, SW 1SS133	S
D310	652-019T	Diode, Detect, SW 1SS133	S
D311	652-019T	Diode, Detect, SW 1SS133	S
D312	652-019T	Diode, Detect, SW 1SS133	S
D313	652-019T	Diode, Detect, SW 1SS133	S
D315	652-019T	Diode, Detect, SW 1SS133	S
D316	652-019T	Diode, Detect, SW 1SS133	S
D401	652-019T	Diode, Detect, SW 1SS133	S
D501	652-019T	Diode, Detect, SW 1SS133	S
D502	652-019T	Diode, Detect, SW 1SS133	S
D503	652-019T	Diode, Detect, SW 1SS133	S
D505	652-019T	Diode, Detect, SW 1SS133	S
D506	652-019T	Diode, Detect, SW 1SS133	S
D507	652-019T	Diode, Detect, SW 1SS133	S
D508	652-019T	Diode, Detect, SW 1SS133	S
D509	652-019T	Diode, Detect, SW 1SS133	S
D510	651-014T	Diode, Detect, SW 1S2471	S
D511	652-019T	Diode, Detect, SW 1SS133	S
D513	652-019T	Diode, Detect, SW 1SS133	S
D514	652-019T	Diode, Detect, SW 1SS133	S
D515	652-019T	Diode, Detect, SW 1SS133	S
D516	652-019T	Diode, Detect, SW 1SS133	S
D601	652-019T	Diode, Detect, SW 1SS133	S
D602	652-019T	Diode, Detect, SW 1SS133	S
D603	652-019T	Diode, Detect, SW 1SS133	S
D604	652-019T	Diode, Detect, SW 1SS133	S
D605	652-019T	Diode, Detect, SW 1SS133	S

S : Service Part  
 ESD : Electric Discharge  
 Sensitive Device

Replacement No.	Part No.	Description	Remarks
D606	652-019T	Diode, Detect, SW 1SS133	S
D607	652-019T	Diode, Detect, SW 1SS133	S
D608	652-019T	Diode, Detect, SW 1SS133	S

### DELAY LINES

DLB01	617-010A	Delay Line MS-32P	S
DLB02	617-011A	Delay Line MS-31PC	S

### FUSES

F102	585-012F 585-011F	Fuse T 1A 250V or Fuse T 1A 250V	S S
F103	585-011A 585-009A	Fuse, T 500MA 250V or Fuse, T 500MA 250V	S S
F104	585-012F 585-011F	Fuse, T 1A 250V or Fuse, T 1A 250V	S S

### IC'S

IC001	668-350A	IC, HAI1718	S
IC102	668-233D 668-233C	IC, Regulator GL7809 9V/A IC, Regulator AN7806 6V/A	S S
IC201	668-402B	IC, TD6365N-A4	S
IC202	668-347A	IC, TA8618S	S
IC203	668-203B 668-203A	IC, GL324 IC, KIA75902P	S S
IC301	668-120A	IC, Video Detect HA11745	ESD S
IC302	668-078A	IC, Color APC HA11741	ESD S
IC303	668-280A	IC, Pal/Secam-D LA7311	ESD S
IC501	668-401A	IC, TMP 47C200AN-2574	S
IC502	668-331A	IC, LB1641 1CH	S

### FILTERS, COILS

FL001	616-063A	Filter, Head Peak	S
FL301	616-086B	Filter, HPF 1.59MHZ	S
FL302	616-088A	Filter, GP4.43	S
FL303	616-068A	Filter, BPF 5.06MHZ	S
FL304	616-070A	Filter, LPF+EQ 3MHZ	S
L001	637-008Y	Coil, Peaking 100UH-K	S
L002	637-008Y	Coil, Peaking 100UH-K	S
L003	637-009C	Coil, Peaking 220UH-K	S
L004	637-008Y	Coil, Peaking 100UH-K	S
L101	616-004B	Filter, Line 801-302-FD	S
L102	616-040A	Filter, Line DC24V 1MH	S
L103	646-027C	DC Line Choke	S
L301	637-012G	Coil, Peaking 100 UH-K	S
L302	637-012G	Coil, Peaking 100 UH-K	S
L303	637-012A	Coil, Peaking 33 UH-K	S
L304	637-012A	Coil, Peaking 33 UH-K	S
L305	637-012G	Coil, Peaking 100 UH-K	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
L306	637-012G	Coil, Peaking 100 UH-K	S
L307	637-012G	Coil, Peaking 100 UH-K	S
L308	637-008R	Coil, Peaking 27 UH-K	S
L309	637-011W	Coil, Peaking 15.0 UH-K	S
L310	637-012G	Coil, Peaking 100 UH-K	S
L311	627-012K	Coil, Peaking 220 UH-K	S
L312	637-012A	Coil, Peaking 33 UH-K	S
L313	637-012A	Coil, Peaking 33 UH-K	S
L314	637-013F	Coil, Peaking 8.2MH-J	S
L315	637-013A	Coil, Peaking 2.20MH-J	S
L316	637-012L	Coil, Peaking 270UH-K	S
L317	637-013A	Coil, Peaking 2.20MH-J	S
L319	637-012G	Coil, Peaking 100 UH-K	S
L401	637-012G	Coil, Peaking 100 UH-K	S
L501	637-012G	Coil, Peaking 100 UH-K	S

### LEDS

LD601	653-023C	LED, KLG162E GN	S
LD602	653-023A	LED, KLR162E RD	S
LD603	653-023C	LED, KLG162E GN	S
LD604	653-023A	LED, KLR162E RD	S
LD605	653-023A	LED, KLR162E RD	S
LD606	653-023A	LED, KLR162E RD	S
LD607	653-023A	LED, KLR162E RD	S

### TRANSISTORS

Q001	664-001E	Transistor, KTC1815-BL	S
Q002	664-002Q	Transistor, KTA1015-Y	S
Q101	667-015A	Transistor, Degi 2SD1276P	S
Q102	664-009Q	Transistor, KTA966-Y	S
Q103	667-032A	Transistor, Degi DTC144ES	S
Q104	664-009Q	Transistor, KTA966-Y	S
Q105	667-032A	Transistor, Degi DTC144ES	S
Q201	667-032A	Transistor, Degi DTC144ES	S
Q202	667-032A	Transistor, Degi DTC144ES	S
Q301	664-001S	Transistor, KTC1815-BL	S
Q302	664-001S	Transistor, KTC1815-BL	S
Q303	667-032A	Transistor, Degi DTC144ES	S
Q304	664-001S	Transistor, KTC1815-BL	S
Q305	667-032A	Transistor, Degi DTC144ES	S
Q306	664-001R	Transistor, KTC1815-GR	S
Q307	664-002Q	Transistor, KTA1015-Y	S
Q308	664-001R	Transistor, KTC1815-GR	S
Q309	664-001R	Transistor, KTC1815-GR	S
Q310	664-001R	Transistor, KTC1815-GR	S
Q312	664-001R	Transistor, KTC1815-GR	S
Q313	664-001R	Transistor, KTC1815-GR	S
Q314	664-001R	Transistor, KTC1815-GR	S
Q315	664-002Q	Transistor, KTA1015-Y	S
Q316	664-001R	Transistor, KTC1815-GR	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
Q317	664-001R	Transistor, KTC1815-GR	S
Q318	664-001R	Transistor, KTC1815-GR	S
Q319	664-001R	Transistor, KTC1815-GR	S
Q320	664-001R	Transistor, KTC1815-GR	S
Q321	667-032A	Transistor, Degi DTC144ES	S
Q322	664-001R	Transistor, KTC1815-GR	S
Q325	664-001R	Transistor, KTC1815-GR	S
Q326	664-001R	Transistor, KTC1815-GR	S
Q350	664-002Q	Transistor, KTA1015-Y	S
Q351	667-032A	Transistor, Degi DTC144ES	S
Q401	664-006E	Transistor, KTC732TM-BL	S
Q402	664-001S	Transistor, KTC1815-BL	S
Q403	664-001S	Transistor, KTC1815-BL	S
Q404	664-001S	Transistor, KTC1815-BL	S
Q406	664-001S	Transistor, KTC1815-BL	S
Q407	667-032A	Transistor, Degi DTC144ES	S
Q501	664-043D	Transistor, Degi KN1204 47K-47K	S
Q502	664-001Q	Transistor, KTC1815-Y	S
Q503	664-001Q	Transistor, KTC1815-Y	S
Q504	664-001Q	Transistor, KTC1815-Y	S

### RESISTORS

R001	RD122J4B	Resistor, Carbon Film 1.2K-J 1/6W	S
R002	RD471J4B	Resistor, Carbon Film 470-J 1/6W	S
R003	RD471J4B	Resistor, Carbon Film 470-J 1/6W	S
R004	RD222J4B	Resistor, Carbon Film 2.2K-J 1/6W	S
R005	RD473J4D	Resistor, Carbon Film 47K-J 1/6W	S
R007	RD332J4B	Resistor, Carbon Film 3.3K-J 1/6W	S
R008	RD471J4B	Resistor, Carbon Film 470-J 1/6W	S
R009	RD332J4B	Resistor, Carbon Film 3.3K-J 1/6W	S
R010	RD332J4B	Resistor, Carbon Film 3.3K-J 1/6W	S
R011	RD122J4B	Resistor, Carbon Film 1.2K-J 1/6W	S
R012	RD102J4B	Resistor, Carbon Film 1K-J 1/6W	S
R013	RD821J4B	Resistor, Carbon Film 820-J 1/6W	S
R015	RD223J4B	Resistor, Carbon Film 22K-J 1/6W	S
R016	RD102J4B	Resistor, Carbon Film 1K-J 1/6W	S
R101	RD471J4B	Resistor, Carbon Film 470-J 1/6W	S
R102	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R103	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R104	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R105	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R201	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R203	RD222J4D	Resistor, Carbon Film 2.2K-J 1/6W	S
R204	RD821J4D	Resistor, Carbon Film 820-J 1/6W	S
R205	RD152J4D	Resistor, Carbon Film 1.5K-J 1/6W	S
R206	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R207	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R208	RD334J4D	Resistor, Carbon Film 330K-J 1/6W	S
R209	RD154J4D	Resistor, Carbon Film 150K-J 1/6W	S
R210	RD474J4D	Resistor, Carbon Film 470K-J 1/6W	S
R211	RD333J4D	Resistor, Carbon Film 33K-J 1/6W	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
R212	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R213	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R214	RD820J4D	Resistor, Carbon Film 82-J 1/6W	S
R215	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R216	RD123J4D	Resistor, Carbon Film 12K-J 1/6W	S
R217	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R218	RD101J4D	Resistor, Carbon Film 100-J 1/6W	S
R219	RD272J4D	Resistor, Carbon Film 2.7K-J 1/6W	S
R220	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R222	RD683J4D	Resistor, Carbon Film 68K-J 1/6W	S
R224	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R225	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R226	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R227	RD105J4D	Resistor, Carbon Film 1.0M-J 1/6W	S
R228	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R229	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R230	RD473J4D	Resistor, Carbon Film 47K-J 1/6W	S
R231	RD273J4D	Resistor, Carbon Film 27K-J 1/6W	S
R232	RD273J4D	Resistor, Carbon Film 27K-J 1/6W	S
R233	RD184J4D	Resistor, Carbon Film 180K-J 1/6W	S
R234	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R235	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R236	RD473J4D	Resistor, Carbon Film 47K-J 1/6W	S
R237	RD273J4D	Resistor, Carbon Film 27K-J 1/6W	S
R238	RD471J4D	Resistor, Carbon Film 470-J 1/6W	S
R240	RD123J4D	Resistor, Carbon Film 12K-J 1/6W	S
R241	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R242	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R301	RD391J4D	Resistor, Carbon Film 390-J 1/6W	S
R302	RD391J4D	Resistor, Carbon Film 390-J 1/6W	S
R303	RD152J4D	Resistor, Carbon Film 1.5K-J 1/6W	S
R304	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R305	RD272J4D	Resistor, Carbon Film 2.7K-J 1/6W	S
R306	RD471J4D	Resistor, Carbon Film 470-J 1/6W	S
R307	RD471J4D	Resistor, Carbon Film 470-J 1/6W	S
R308	RD471J4D	Resistor, Carbon Film 470-J 1/6W	S
R309	RD822J4D	Resistor, Carbon Film 8.2K-J 1/6W	S
R310	RD332J4D	Resistor, Carbon Film 3.3K-J 1/6W	S
R311	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R312	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R313	RD101J4D	Resistor, Carbon Film 100-J 1/6W	S
R314	RD681J4D	Resistor, Carbon Film 680-J 1/6W	S
R315	RD471J4D	Resistor, Carbon Film 470-J 1/6W	S
R316	RD471J4D	Resistor, Carbon Film 470-J 1/6W	S
R317	RD152J4D	Resistor, Carbon Film 1.5K-J 1/6W	S
R318	RD223J4D	Resistor, Carbon Film 22K-J 1/6W	S
R319	RD563J4D	Resistor, Carbon Film 56K-J 1/6W	S
R320	RD152J4D	Resistor, Carbon Film 1.5K-J 1/6W	S
R321	RD331J4D	Resistor, Carbon Film 330-J 1/6W	S
R322	RD152J4D	Resistor, Carbon Film 1.5K-J 1/6W	S
R323	RD181J4D	Resistor, Carbon Film 180-J 1/6W	S
R324	RD331J4D	Resistor, Carbon Film 330-J 1/6W	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
R325	RD181J4D	Resistor, Carbon Film 180-J 1/6W	S
R326	RD152J4D	Resistor, Carbon Film 1.5K-J 1/6W	S
R327	RD153J4D	Resistor, Carbon Film 15K-J 1/6W	S
R328	RD153J4D	Resistor, Carbon Film 15K-J 1/6W	S
R329	RD152J4D	Resistor, Carbon Film 1.5K-J 1/6W	S
R330	RD394J4D	Resistor, Carbon Film 390K-J 1/6W	S
R331	RD392J4D	Resistor, Carbon Film 3.9K-J 1/6W	S
R332	RD682J4D	Resistor, Carbon Film 6.8K-J 1/6W	S
R333	RD392J4D	Resistor, Carbon Film 3.9K-J 1/6W	S
R334	RD394J4D	Resistor, Carbon Film 390K-J 1/6W	S
R335	RD222J4D	Resistor, Carbon Film 2.2K-J 1/6W	S
R336	RD154J4D	Resistor, Carbon Film 150K-J 1/6W	S
R337	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R338	RD682J4D	Resistor, Carbon Film 6.8K-J 1/6W	S
R339	RD273J4D	Resistor, Carbon Film 27K-J 1/6W	S
R340	RD681J4D	Resistor, Carbon Film 680-J 1/6W	S
R341	RD473J4D	Resistor, Carbon Film 47K-J 1/6W	S
R342	RD333J4D	Resistor, Carbon Film 33K-J 1/6W	S
R343	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R344	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R345	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R346	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R347	RD271J4D	Resistor, Carbon Film 270-J 1/6W	S
R348	RD272J4D	Resistor, Carbon Film 2.7K-J 1/6W	S
R349	RD103J4D	Resistor, Carbon Film 10K-J 1/6W	S
R350	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R351	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R352	RD564J4D	Resistor, Carbon Film 560K-J 1/6W	S
R353	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R354	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R355	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R356	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R357	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R358	RD333J4D	Resistor, Carbon Film 33K-J 1/6W	S
R359	RD392J4D	Resistor, Carbon Film 3.9K-J 1/6W	S
R360	RD392J4D	Resistor, Carbon Film 3.9K-J 1/6W	S
R361	RD331J4D	Resistor, Carbon Film 330-J 1/6W	S
R362	RD391J4D	Resistor, Carbon Film 390-J 1/6W	S
R363	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R364	RD471J4D	Resistor, Carbon Film 470-J 1/6W	S
R365	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R366	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R367	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R368	RD222J4D	Resistor, Carbon Film 2.2K-J 1/6W	S
R369	RD821J4D	Resistor, Carbon Film 820-J 1/6W	S
R370	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R371	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R372	RD332J4D	Resistor, Carbon Film 3.3K-J 1/6W	S
R373	RD274J4D	Resistor, Carbon Film 270K-J 1/6W	S
R374	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R375	RD333J4D	Resistor, Carbon Film 33K-J 1/6W	S
R376	RD151J4D	Resistor, Carbon Film 150-J 1/6W	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
R377	RD222J4D	Resistor, Carbon Film 2.2K-J 1/6W	S
R378	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R379	RD222J4D	Resistor, Carbon Film 2.2K-J 1/6W	S
R380	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R381	RD682J4D	Resistor, Carbon Film 6.8K-J 1/6W	S
R382	RD821J4D	Resistor, Carbon Film 820-J 1/6W	S
R383	RD273J4D	Resistor, Carbon Film 27K-J 1/6W	S
R384	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R385	RD271J4D	Resistor, Carbon Film 270-J 1/6W	S
R386	RD101J4D	Resistor, Carbon Film 100-J 1/6W	S
R387	RD151J4D	Resistor, Carbon Film 150-J 1/6W	S
R388	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R389	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R390	RD681J4D	Resistor, Carbon Film 680-J 1/6W	S
R391	RD103J4D	Resistor, Carbon Film 10K-J 1/6W	S
R392	RD103J4D	Resistor, Carbon Film 10K-J 1/6W	S
R393	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R394	RD332J4D	Resistor, Carbon Film 3.3K-J 1/6W	S
R395	RD682J4D	Resistor, Carbon Film 6.8K-J 1/6W	S
R396	RD152J4D	Resistor, Carbon Film 1.5K-J 1/6W	S
R397	RD151J4D	Resistor, Carbon Film 150-J 1/6W	S
R398	RD151J4D	Resistor, Carbon Film 150-J 1/6W	S
R399	RD750J4D	Resistor, Carbon Film 75-J 1/6W	S
R3A1	RD182J4D	Resistor, Carbon Film 1.8K-J 1/6W	S
R3A2	RD182J4D	Resistor, Carbon Film 1.8K-J 1/6W	S
R3A2	RD682J4D	Resistor, Carbon Film 6.8K-J 1/6W	S
R3A3	RD471J4D	Resistor, Carbon Film 470-J 1/6W	S
R3A4	RD101J4D	Resistor, Carbon Film 100-J 1/6W	S
R3A5	RD562J4D	Resistor, Carbon Film 5.6K-J 1/6W	S
R3A6	RD273J4D	Resistor, Carbon Film 27K-J 1/6W	S
R3A7	RD821J4D	Resistor, Carbon Film 820-J 1/6W	S
R3A7	RD333J4D	Resistor, Carbon Film 33K-J 1/6W	S
R3A9	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R3B1	RD471J4D	Resistor, Carbon Film 470-J 1/6W	S
R3B2	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R3B3	RD332J4D	Resistor, Carbon Film 3.3K-J 1/6W	S
R3B4	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R3B5	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R3B6	RD222J4D	Resistor, Carbon Film 2.2K-J 1/6W	S
R3B7	RD222J4D	Resistor, Carbon Film 2.2K-J 1/6W	S
R3B8	RD153J4D	Resistor, Carbon Film 15K-J 1/6W	S
R3C1	RD123J4D	Resistor, Carbon Film 12K-J 1/6W	S
R3C2	RD103J4D	Resistor, Carbon Film 10K-J 1/6W	S
R3C3	RD122J4D	Resistor, Carbon Film 1.2K-J 1/6W	S
R3C4	RD103J4D	Resistor, Carbon Film 10K-J 1/6W	S
R3C7	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R3C9	RD153J4D	Resistor, Carbon Film 15K-J 1/6W	S
R3D0	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R401	RD683J4D	Resistor, Carbon Film 68K-J 1/6W	S
R402	RD154J4D	Resistor, Carbon Film 150K-J 1/6W	S
R403	RD470J4D	Resistor, Carbon Film 47-J 1/6W	S
R404	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
R405	RD222J4D	Resistor, Carbon Film 2.2K-J 1/6W	S
R406	RD682J4D	Resistor, Carbon Film 6.8K-J 1/6W	S
R407	RD394J4D	Resistor, Carbon Film 390K-J 1/6W	S
R408	RD223J4D	Resistor, Carbon Film 22K-J 1/6W	S
R409	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R410	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R411	RD123J4D	Resistor, Carbon Film 12K-J 1/6W	S
R412	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R413	RD271J4D	Resistor, Carbon Film 270-J 1/6W	S
R414	RD221J4D	Resistor, Carbon Film 220-J 1/6W	S
R416	RD152J4D	Resistor, Carbon Film 1.5K-J 1/6W	S
R418	RD152J4D	Resistor, Carbon Film 1.5K-J 1/6W	S
R501	RD333J4D	Resistor, Carbon Film 33K-J 1/6W	S
R502	RD333J4D	Resistor, Carbon Film 33K-J 1/6W	S
R503	RD333J4D	Resistor, Carbon Film 33K-J 1/6W	S
R504	RD333J4D	Resistor, Carbon Film 33K-J 1/6W	S
R505	RD273J4D	Resistor, Carbon Film 27K-J 1/6W	S
R506	RD273J4D	Resistor, Carbon Film 27K-J 1/6W	S
R507	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R508	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R509	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R510	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R511	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R512	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R513	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R514	RD681J4D	Resistor, Carbon Film 680-J 1/6W	S
R515	RD103J4D	Resistor, Carbon Film 10K-J 1/6W	S
R517	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R518	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R522	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R523	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R524	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R525	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
R526	RD333J4D	Resistor, Carbon Film 33K-J 1/6W	S
R527	RD561J4D	Resistor, Carbon Film 560-J 1/6W	S
R528	RD822J4D	Resistor, Carbon Film 8.2K-J 1/6W	S
R529	RD332J0A	Resistor, Carbon Film 3.3K-J 1/8W	S
R530	RD332J0A	Resistor, Carbon Film 3.3K-J 1/8W	S
R531	RD124J4D	Resistor, Carbon Film 120K-J 1/6W	S
R532	RD332J4D	Resistor, Carbon Film 3.3K-J 1/6W	S
R534	RD103J4D	Resistor, Carbon Film 10K-J 1/6W	S
R535	RD221J4D	Resistor, Carbon Film 220-J 1/6W	S
R536	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R537	RD104J4D	Resistor, Carbon Film 100K-J 1/6W	S
R538	RD153J4D	Resistor, Carbon Film 15K-J 1/6W	S
R539	RD222J4D	Resistor, Carbon Film 2.2K-J 1/6W	S
R543	RD472J4D	Resistor, Carbon Film 4.7K-J 1/6W	S
R601	RD220J01	Resistor, Carbon Film 22-J 1/8W	S
R602	RD391J4D	Resistor, Carbon Film 390-J 1/6W	S
R603	RD391J4D	Resistor, Carbon Film 390-J 1/6W	S
R604	RD391J4D	Resistor, Carbon Film 390-J 1/6W	S
R605	RD391J4D	Resistor, Carbon Film 390-J 1/6W	S

S : Service Part

Replacement No.	Part No.	Description	Remarks
R606	RD102J4D	Resistor, Carbon Film 1K-J 1/6W	S
RD01	RD151J01	Resistor, Carbon Film 150-J 1/8W	S
RD02	RD331J01	Resistor, Carbon Film 330-J 1/8W	S
<b>SWITCHES</b>			
SW601	556-032F	Switch, Tact KHH-10906	S
SW602	556-032F	Switch, Tact KHH-10906	S
SW603	556-032F	Switch, Tact KHH-10906	S
SW604	556-032F	Switch, Tact KHH-10906	S
SW605	554-005A	Switch, Tact KPT-1109R	S
SW606	556-032F	Switch, Tact KHH-10906	S
SW607	556-032F	Switch, Tact KHH-10906	S
SW608	556-032F	Switch, Tact KHH-10906	S
<b>VARIABLE CAPACITORS</b>			
VC301	623-008A	Capacitor, Trimmer T203R200ER	S
<b>VARIABLE RESISTORS</b>			
VR201	613-022H	VR, Semi M0615-473B	S
VR202	613-022H	VR, Semi M0615-473B	S
VR203	613-001I	VR, Semi-Fixed SR19R-220KB	S
VR301	613-002E	VR, Semi-Fixed SR29R-470B	S
VR302	613-002M	VR, Semi-Fixed SR29R-10KB	S
VR304	613-002T	VR, Semi-Fixed SR29-2.2KB	S
VR401	613-001E	VR, Semi-Fixed SR19R-47KB	S
VR601	611-012T	VR, Rotary RK09K1130-500KB	S
VR602	611-012S	VR, Rotary RK09K113-200KB	S
<b>RESONATOR, CRYSTAL</b>			
X301	529-016A	X-Tal, 4.434619MHZ	S
X302	529-008D	X-Tal, 4.435572MHZ	S
X501	529-010A	Resonator, Ceramic CSA4.0MG	S
<b>ZENER DIODES</b>			
ZD101	654-036M	Diode, Zener MTZ13A	S
ZD501	654-036M	Diode, Zener MTZ-7.5B	S